PIONEER®
The Art of Entertainment

Service Manual

ORDER NO.
RRV1071

MULTI-PLAY COMPACT DISC PLAYER

PD-M603
PD-M503

- **Refer to the service manual RRV1070 for PD-M603/KUXJ.**

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model		Power Requirement	The voltage can be converted by the following method.
	PD-M603	PD-M503		
WEMXJ	○	○	AC220 – 240V	——
WBXJ	○	–	AC220 – 240V	——
RD	○	–	AC110 – 127V/220 – 240V	With the voltage selector
WL	○	–	AC220 – 240V	——
WPW	○	○	AC220 – 240V	——
RDXJ	○	–	AC110 – 127V/220 – 240V	With the voltage selector

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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T – SSG MAR. 1994 Printed in Japan

2. CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

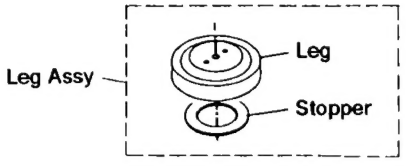
■ CONTRAST OF PD-M603/WEMXJ, WBXJ, RD, WL, WPW, RDXJ, PD-M503/WEMXJ, WPW AND PD-M603/KUXJ

PD-M603/WEMXJ, WBXJ, RD, WL, WPW, RDXJ, PD-M503/WEMXJ,WPW and PD-M603/KUXJ have the same construction except for the following:

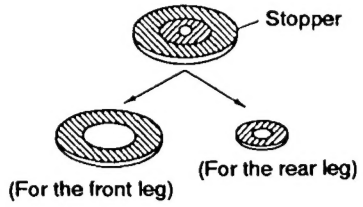
Mark	Symbol & Description	Part No.								
		PD-M603/ KUXJ	PD-M603/ WEMXJ	PD-M603/ WBXJ	PD-M603/ RD	PD-M603/ WL	PD-M603/ WPW	PD-M603/ RDXJ	PD-M503/ WEMXJ	PD-M503/ WPW
⚠	Mother Board Assy	PWM1866	PWM1867	PWM1867	PWM1869	PWM1868	PWM1868	PWM1869	PWM1863	PWM1864
NSP	Sub Board Assy	PWX1360	PWX1360	PWX1360	PWX1360	PWX1360	PWX1360	PWX1360	PWX1359	PWX1359
	Function Board Assy	PWZ2814	PWZ2814	PWZ2814	PWZ2814	PWZ2814	PWZ2814	PWZ2814	PWZ2813	PWZ2813
NSP	Multi Mechanism Assy	PXA1469	PXA1469	PXA1469	PXA1547	PXA1547	PXA1547	PXA1469	PXA1469	PXA1547
⚠	Strain Relief	CM – 22C	CM – 22B	CM – 22B	CM – 22B	CM – 22B	CM – 22B	CM – 22B	CM – 22B	CM – 22B
⚠	Fuse (T5A) *2	Not Used	Not Used	PEK1003	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
⚠	Power Cord with Plug	PDG1002	PDG1003	PDG1055	PDG1056	PDG1003	RDG1022	PDG1056	PDG1003	RDG1022
⚠	Power Transformer (AC120V)	PTT1237	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
⚠	Power Transformer (AC220 – 240V)	Not Used	PTT1236	PTT1236	Not Used	PTT1236	PTT1236	Not Used	PTT1236	PTT1236
⚠	Power Transformer (AC110 – 127/220 – 240V)	Not Used	Not Used	Not Used	PTT1238	Not Used	Not Used	PTT1238	Not Used	Not Used
	32P F.F.C/30V	PDD1125	PDD1125	PDD1125	PDD1125	PDD1125	PDD1125	PDD1125	Not Used	Not Used
	30P F.F.C/30V	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	PDD1126	PDD1126
	Display Window	PAM1607	PAM1606	PAM1606	PAM1607	PAM1607	PAM1607	PAM1607	PAM1605	PAM1600
	Rear Base	PNA2095	PNA2097	PNA2098	PNA2099	PNA2100	PNA2159	PNA2171	PNA2080	PNA2081
	Function Button	PAC1717	PAC1717	PAC1717	PAC1717	PAC1717	PAC1717	PAC1717	PAC1716	PAC1716
	Insulator	PNW1912	PNW1912	PNW1912	PNW1912	PNW1912	PNW1912	PNW1912	PNW1912	Not Used
	Leg Assy *1	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	PEA1293
	Stopper *1	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	PNM1070
NSP	Leg *1	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	PNW1323
	Function Panel	PNW2459	PNW2459	PNW2459	PNW2459	PNW2459	PNW2459	PNW2459	PNW2392	PNW2392
	65 Label	ORW1089	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
	Caution Label	Not Used	Not Used	PRW1018	Not Used	PRW1018	Not Used	Not Used	Not Used	Not Used
	Caution Label HE Refer to Page 2	Not Used	PRW1233	Not Used	Not Used	Not Used	Not Used	Not Used	PRW1233	Not Used
	Caution Label (G) Refer to Page 2	Not Used	VRW – 329	VRW – 329	Not Used	VRW – 329	Not Used	Not Used	VRW – 329	Not Used
	Caution Label Refer to Page 2	Not Used	VRW1094	Not Used	Not Used	Not Used	Not Used	Not Used	VRW1094	Not Used
	CD Packing Case	PHG2014	PHG2016	PHG2017	PHG2018	PHG2019	PHG2071	PHG2084	PHG2008	PHG2007
	Connection Cord with Mini Plug (for SR cord)	PDE – 319	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	PDE – 319	PDE1247
	Connection Cord with Pin Plug (for Audio)	PDE1109	PDE1109	PDE1109	PDE1248	PDE1248	PDE1248	PDE1248	PDE1109	PDE1248
	Remote Control Unit	PWW1068	PWW1068	PWW1068	PWW1068	PWW1068	PWW1068	PWW1068	Not Used	Not Used
	Battery Cover	PZN1010	PZN1010	PZN1010	PZN1010	PZN1010	PZN1010	PZN1010	Not Used	Not Used
	Magazine Assy	PXA1504	PXA1523	PXA1523	PXA1549	PXA1549	PXA1549	PXA1504	PXA1523	PXA1549
	PP Case	PYY1169	Not Used	Not Used	PYY1169	PYY1169	PYY1169	PYY1169	Not Used	PYY1169
NSP	Spacer *3	Not Used	Not Used	PHC1075	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
	Polyethylene Bag *3	Not Used	Not Used	Z21 – 013	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used
	Bag *3	Z21 – 038	Z21 – 038	Z21 – 038	Z21 – 038	Z21 – 038	Z21 – 038	Z21 – 038	Not Used	Not Used
	Sheet *3	Not Used	Z23 – 032	Z23 – 032	Not Used	Not Used	Not Used	Not Used	Z23 – 032	Not Used

Mark	Symbol & Description	Part No.								
		PD-M603/ KUXJ	PD-M603/ WEMXJ	PD-M603/ WBXJ	PD-M603/ RD	PD-M603/ WL	PD-M603/ WPW	PD-M603/ RDXJ	PD-M503/ WEMXJ	PD-M503/ WPW
NSP	Dry Cell Battery (R03, AAA)	VEM – 022	VEM – 022	VEM – 022	VEM – 022	VEM – 022	VEM – 022	VEM – 022	Not Used	Not Used
	Operating instructions (English)	PRB1209	Not Used	PRB1209	Not Used	Not Used	PRB1209	Not Used	Not Used	PRB1209
	Operating instructions (English/French/Dutch/Italian/ German/Swedish/Spanish/ Portuguese)	Not Used	PRE1193	Not Used	Not Used	Not Used	Not Used	Not Used	PRE1193	Not Used
	Operating instructions (English/Spanish/Chinese)	Not Used	Not Used	Not Used	PRE1197	PRE1197	Not Used	PRE1197	Not Used	Not Used

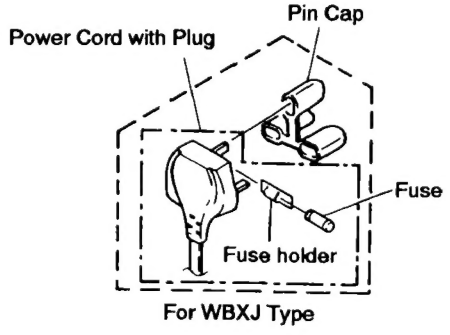
* 1 Leg Assy



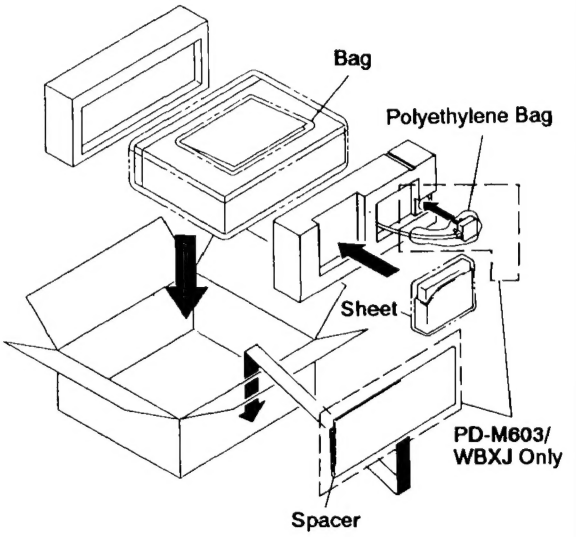
- The stopper consist of the big ring part and the small ring part. If you stick the stopper to the leg, stick the big ring part to the front leg, and the small ring part to the rear leg.



* 2 Power Cord with Plug



* 3 Packing



NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ⊐ or ← V :
   DC voltage (V) in PLAY mode unless otherwise noted.
   ⇦ mA or ← mA :
   DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.
7. **OTHERS:**
   - ⊘ or ⓿ : Adjusting point.
   - ◁ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

FUNCTION BOARD ASSY
S702 : EJECT ▲
S703 : DISC 2
S704 : DISC 1
S705 : AUTO FADER
S706 : DELETE
S708 : PROGRAM
S709 : 1
S710 : 2
S711 : 3
S712 : 4
S713 : 5
S714 : 6
S715 : 7
S716 : 8
S717 : 9
S718 : 10
S719 : >10
S721 : COMPU TIME FADE
S722 : HI – LITE
S723 : DISC 3
S724 : DISC 4
S725 : ADLC
S726 : MUSIC TYPE
S727 : DISC 5
S728 : DISC 6
S729 : PAUSE ❚❚
S730 : REPEAT
S731 : STOP ■
S732 : TIME
S733 : PLAY ▶
S734 : RANDOM
S735 : ⏮◀◀
S736 : ▶▶⏭

SWITCH BOARD ASSY
S801 : POWER
LOADING BOARD ASSY
S601 : LPS1
S602 : LPS2

PD-M603, PD-M503

MULTI MECHANISM ASSY

PXA1547 and PXA1469 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		PXA1469	PXA1547	
	Servo Mechanism Assy M	PXA1417	PXA1543	

Although PXA1417 and PXA1543 are different in part number, they have the same service parts.

MOTHER BOARD ASSY

PWM1867, PWM1869, PWM1868, PWM1863, PWM1864 and PWM1866 have the same construction except for the following:

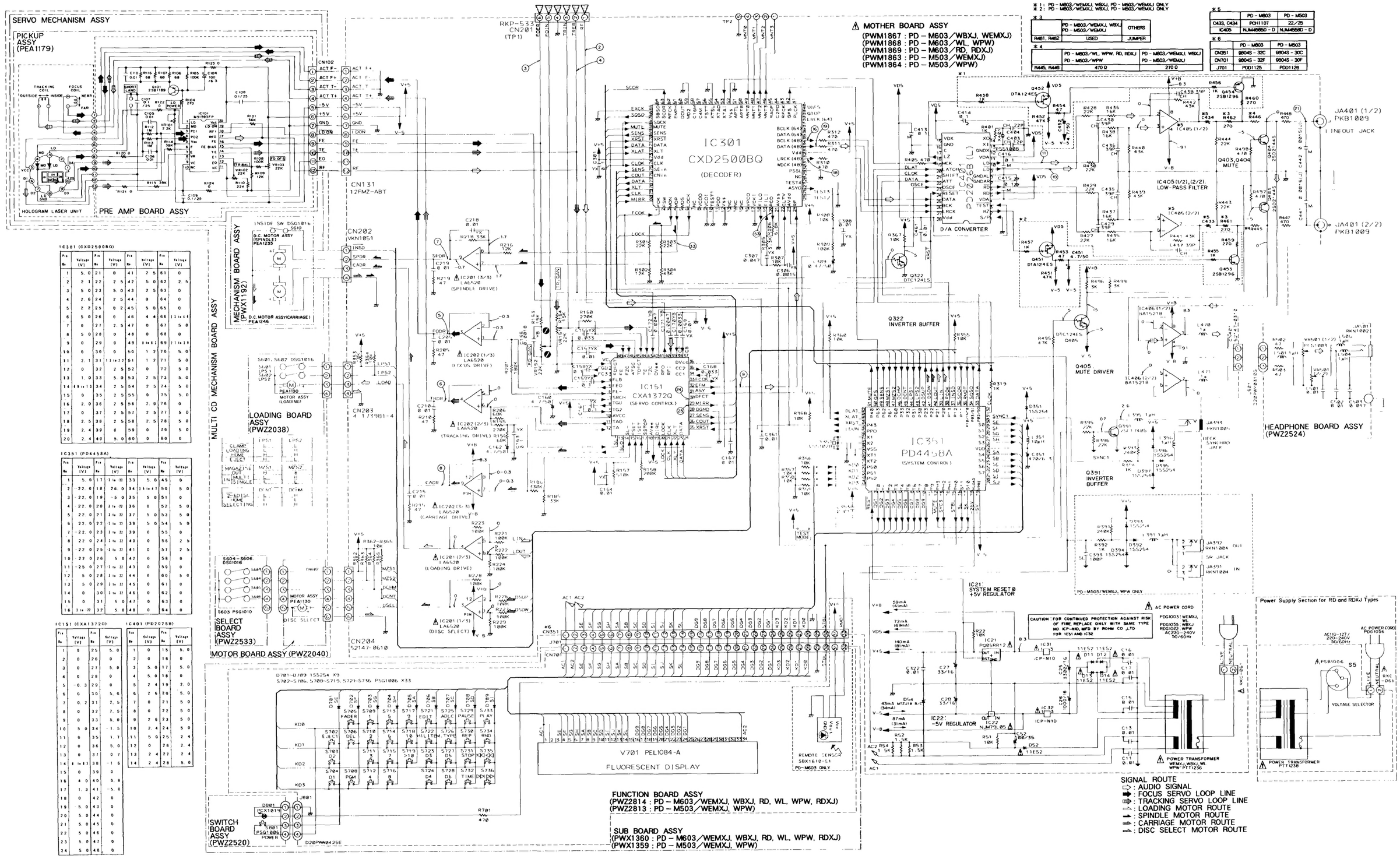
Mark	Symbol & Description	Part No.					
		PWM1866	PWM1867	PWM1869	PWM1868	PWM1863	PWM1864
	IC31, IC32	Not Used	ICP-N10	ICP-N10	ICP-N10	ICP-N10	ICP-N10
	IC405	NJM4565D-D	NJM4565D-D	NJM4565D-D	NJM4565D-D	NJM4558D-D	NJM4558D-D
	Q451, Q452	Not Used	DTA124ES	Not Used	Not Used	DTA124ES	Not Used
	Q453, Q454	Not Used	2SB1296	Not Used	Not Used	2SB1296	Not Used
	D391	1SS254	Not Used	Not Used	Not Used	Not Used	Not Used
	D392 – D394	1SS254	Not Used	Not Used	Not Used	1SS254	1SS254
	L391	LAU010K	Not Used	Not Used	Not Used	LAU010K	LAU010K
	C393	CCCSL101J50	Not Used	Not Used	Not Used	CCCSL101J50	CCCSL101J50
	C433, C434	PCH1107	PCH1107	PCH1107	PCH1107	CEAS220M25	CEAS220M25
	C451, C452	Not Used	CEAS4R7M50	Not Used	Not Used	CEAS4R7M50	Not Used
	R392	RD1/6PM102J	Not Used	Not Used	Not Used	RD1/6PM102J	RD1/6PM102J
	R391	RD1/6PM244J	Not Used	Not Used	Not Used	RD1/6PM244J	RD1/6PM244J
	R445, R446	RD1/6PM471J	RD1/6PM271J	RD1/6PM471J	RD1/6PM471J	RD1/6PM271J	RD1/6PM471J
	R451, R452	Not Used	RD1/6PM473J	Not Used	Not Used	RD1/6PM473J	Not Used
	R453, R454	Not Used	RD1/6PM470J	Not Used	Not Used	RD1/6PM470J	Not Used
	R455 – R458	Not Used	RD1/6PM102J	Not Used	Not Used	RD1/6PM102J	Not Used
	R461, R462	Jumper Wire	RD1/6PM271J	Jumper Wire	Jumper Wire	RD1/6PM271J	Jumper Wire
	R459, R460	Not Used	RD1/6PM271J	Not Used	Not Used	RD1/6PM271J	Not Used
	CN351	9604S-32C	9604S-32C	9604S-32C	9604S-32C	9604S-30C	9604S-30C
	JA391, JA392	RKN1004	Not Used	Not Used	Not Used	RKN1004	RKN1004
⚠	S5 Voltage selector (AC110 – 127/220 – 40V)	Not Used	Not Used	PSB1006	Not Used	Not Used	Not Used

FUNCTION BOARD ASSY

PWZ2813 and PWZ2814 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		PWZ2814	PWZ2813	
	CN701 Connector Remote Sensor	9604S-32F SBX1610-51	9604S-30F Not Used	

3. SCHEMATIC AND PCB DIAGRAM



IC301 (CXD2500BQ)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	5.0	21	0	41	2.5	61	0
2	2.1	22	2.5	42	5.0	62	2.5
3	5.0	23	5.0	43	2.5	63	0
4	2.6	24	2.5	44	0	64	0
5	2.2	25	0.2	45	5.0	65	0
6	5.0	26	0	46	4.4	66	1.1 to 1.8
7	0	27	2.5	47	0	67	5.0
8	5.0	28	0	48	0	68	0
9	0	29	0	49	1.1 to 1.8	69	1.1 to 1.8
10	0	30	0	50	1.2	70	5.0
11	2.1	31	1.1 to 2.2	51	1.2	71	5.0
12	0	32	2.5	52	0	72	5.0
13	1.0	33	5.0	53	2.5	73	5.0
14	1.1 to 1.3	34	2.5	54	2.5	74	5.0
15	0	35	2.5	55	0	75	5.0
16	2.0	36	2.5	56	2.9	76	0
17	0	37	2.5	57	2.5	77	5.0
18	2.5	38	2.5	58	2.5	78	5.0
19	2.4	39	0	59	0	79	5.0
20	2.4	40	5.0	60	0	80	0

IC351 (PD4458A)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	5.0	17	1.1 to 1.3	33	5.0	49	0
2	-22.0	18	26.0	34	1.1 to 1.5	50	5.0
3	-22.0	19	-5.0	35	5.0	51	0
4	-22.0	20	1.1 to 1.7	36	0	52	5.0
5	-22.0	21	1.1 to 1.7	37	5.0	53	5.0
6	-22.0	22	1.1 to 1.7	38	5.0	54	5.0
7	-22.0	23	1.1 to 1.7	39	0	55	0
8	-22.0	24	1.1 to 1.7	40	0	56	2.5
9	-22.0	25	1.1 to 1.7	41	0	57	2.5
10	-22.0	26	5.0	42	0	58	0
11	-25.0	27	1.1 to 1.7	43	0	59	0
12	5.0	28	1.1 to 1.7	44	0	60	5.0
13	5.0	29	1.1 to 1.7	45	0	61	0
14	0	30	1.1 to 1.7	46	0	62	0
15	0	31	5.0	47	0	63	0
16	1.1 to 1.7	32	5.0	48	0	64	0

IC151 (CXA1372Q)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	25	5.0
2	0	26	0
3	0	27	5.0
4	0	28	0
5	-0.3	29	0
6	0	30	5.0
7	0.2	31	2.5
8	0	32	2.5
9	0	33	5.0
10	5.0	34	1.5
11	0	35	1.7
12	0	36	5.0
13	0	37	0.7
14	1.1 to 1.3	38	-1.6
15	0	39	0
16	4.0	40	0.8
17	1.3	41	-5.0
18	0	42	0
19	5.0	43	0
20	5.0	44	0
21	5.0	45	0
22	5.0	46	0
23	5.0	47	0
24	5.0	48	0

IC401 (PD2078B)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	15	5.0
2	0	16	0
3	5.0	17	5.0
4	5.0	18	0
5	2.4	19	2.0
6	2.6	20	5.0
7	0	21	5.0
8	0	22	5.0
9	2.6	23	5.0
10	2.4	24	5.0
11	5.0	25	2.4
12	0	26	2.4
13	2.4	27	2.4
14	2.4	28	5.0

IC151 (CXA1372Q)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	25	5.0
2	0	26	0
3	0	27	5.0
4	0	28	0
5	-0.3	29	0
6	0	30	5.0
7	0.2	31	2.5
8	0	32	2.5
9	0	33	5.0
10	5.0	34	1.5
11	0	35	1.7
12	0	36	5.0
13	0	37	0.7
14	1.1 to 1.3	38	-1.6
15	0	39	0
16	4.0	40	0.8
17	1.3	41	-5.0
18	0	42	0
19	5.0	43	0
20	5.0	44	0
21	5.0	45	0
22	5.0	46	0
23	5.0	47	0
24	5.0	48	0

IC401 (PD2078B)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	15	5.0
2	0	16	0
3	5.0	17	5.0
4	5.0	18	0
5	2.4	19	2.0
6	2.6	20	5.0
7	0	21	5.0
8	0	22	5.0
9	2.6	23	5.0
10	2.4	24	5.0
11	5.0	25	2.4
12	0	26	2.4
13	2.4	27	2.4
14	2.4	28	5.0

* 1 : PD – M603/WEMXJ, WBXJ, PD – M503/WEMXJ ONLY
* 2 : PD – M603/WEMXJ, WBXJ, PD – M503/WEMXJ ONLY

* 3

	PD – M603/WEMXJ, WBXJ, PD – M503/WEMXJ	OTHERS
R481, R482	USED	JUMPER

* 4

	PD – M603/WL, WPW, RD, RDXJ, PD – M503/WPW	PD – M603/WEMXJ, WBXJ, PD – M503/WEMXJ
R445, R446	470 Ω	270 Ω

* 5

	PD – M603	PD – M503
C433, C434	PCH1107	22/25
IC405	NJM4558D – D	NJM4558D – D

* 6

	PD – M603	PD – M503
CN351	98045 – 32C	98045 – 30C
CN701	98045 – 32F	98045 – 30F
J701	PDD1125	PDD1126

• **This diagram is viewed from the mounted parts side.**

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
Q504 (E C B) Q504	Q504 Q504	Transistor
D203 D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ⊙ or ⊐ shows cathode side.
5. The capacitor terminal marked with ⊖ or ⊏ shows negative terminal.

NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
	IN OUT	3- terminal regulator

✳1

	PD – M603	PD – M503
CN351	9604S – 32C	9604S – 30C
CN701	9604S – 32F	9604S – 30F

✳2 : PD – M503/WEMXJ, WPW ONLY
✳3 : PD – M603/RD, RDXJ ONLY

✳4

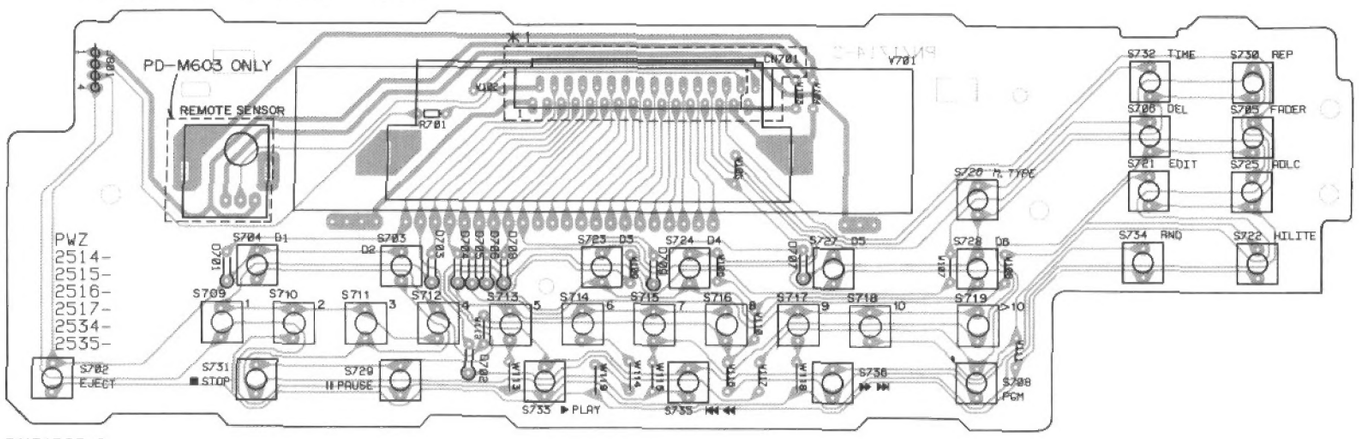
RD, RDXJ	OTHERS
W116	W115

✳5 : PD – M603/WEMXJ, WBXJ, PD – 503/WEMXJ, ONLY

✳6

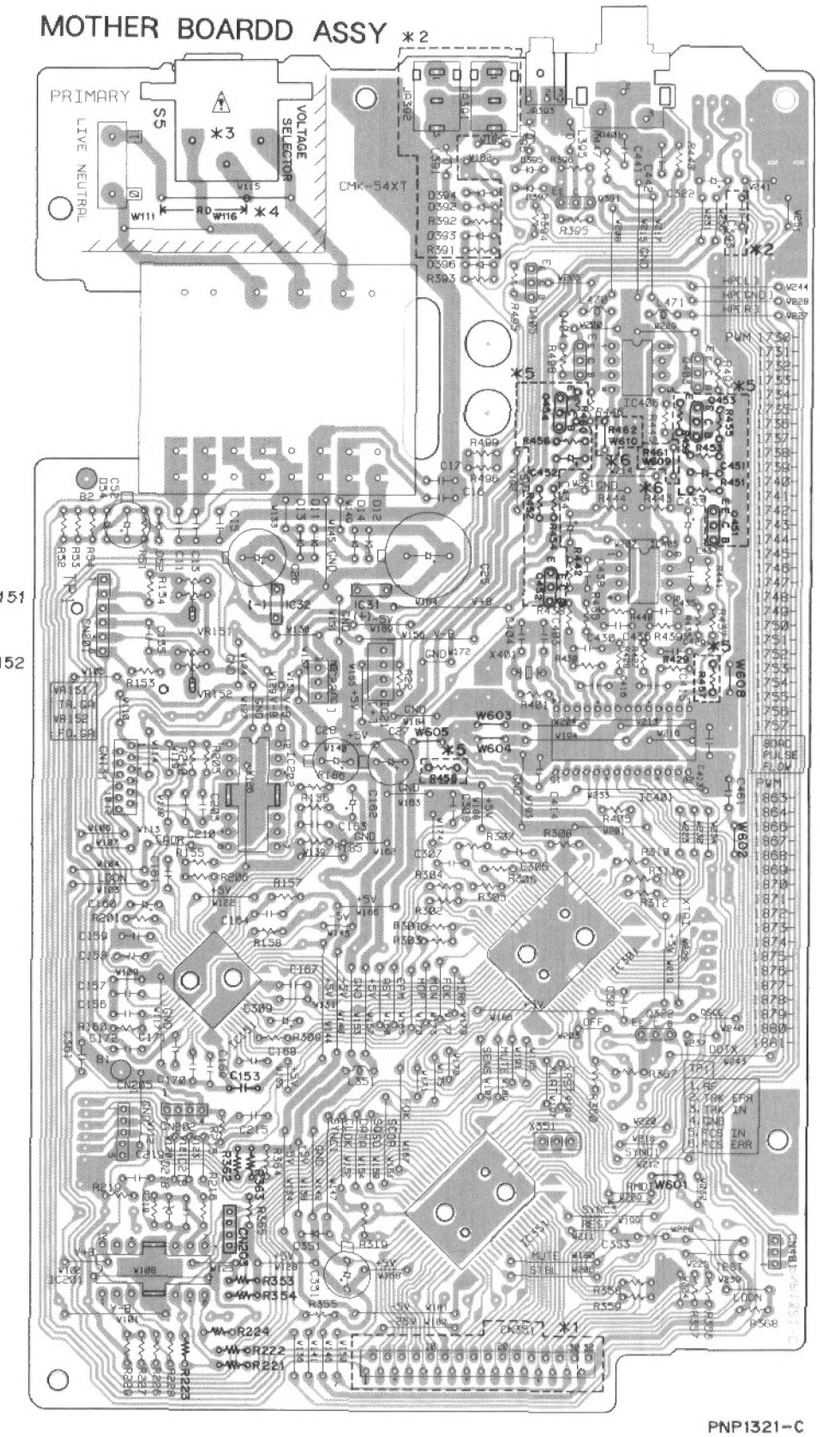
	PD – M603/WEMXJ, WBXJ PD – M503/WEMXJ	OTHERS
R461, R462	USED	JUMPER

FUNCTION BOARD ASSY



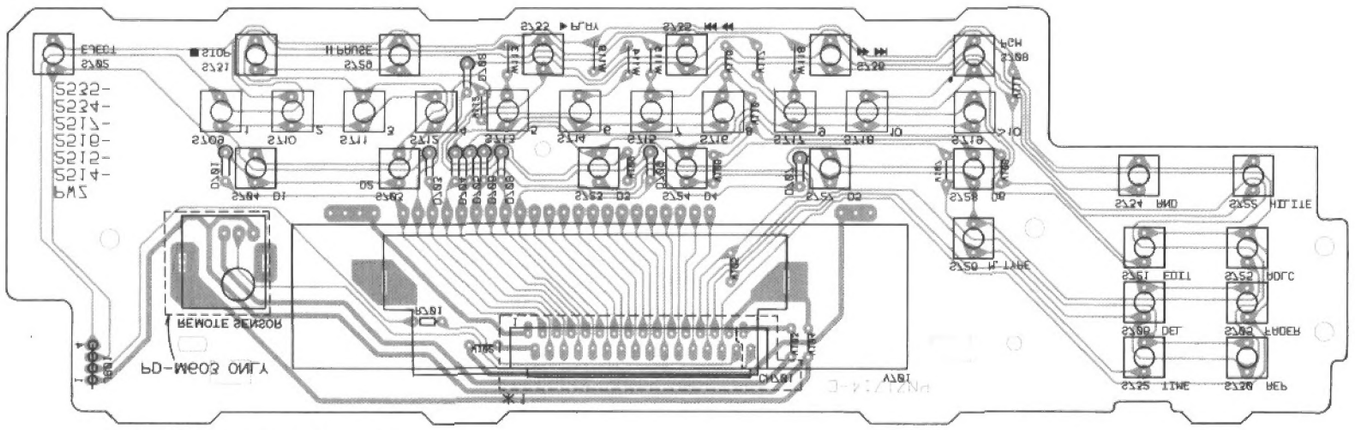
PNP1323-D

MOTHER BOARDD ASSY ✳2



PNP1321-C

PWB:252-D



NUMBER	USED	PAR1, PAR2
OTHERS	PD – M603\MEMX, MBX PD – M603\MEMXL, LMBX	

*2

*2 : PD – M603\MEMXL, MBXL, PD – 203\MEMXL ONLY

MT15	MT16
OTHERS	RD, RDXL

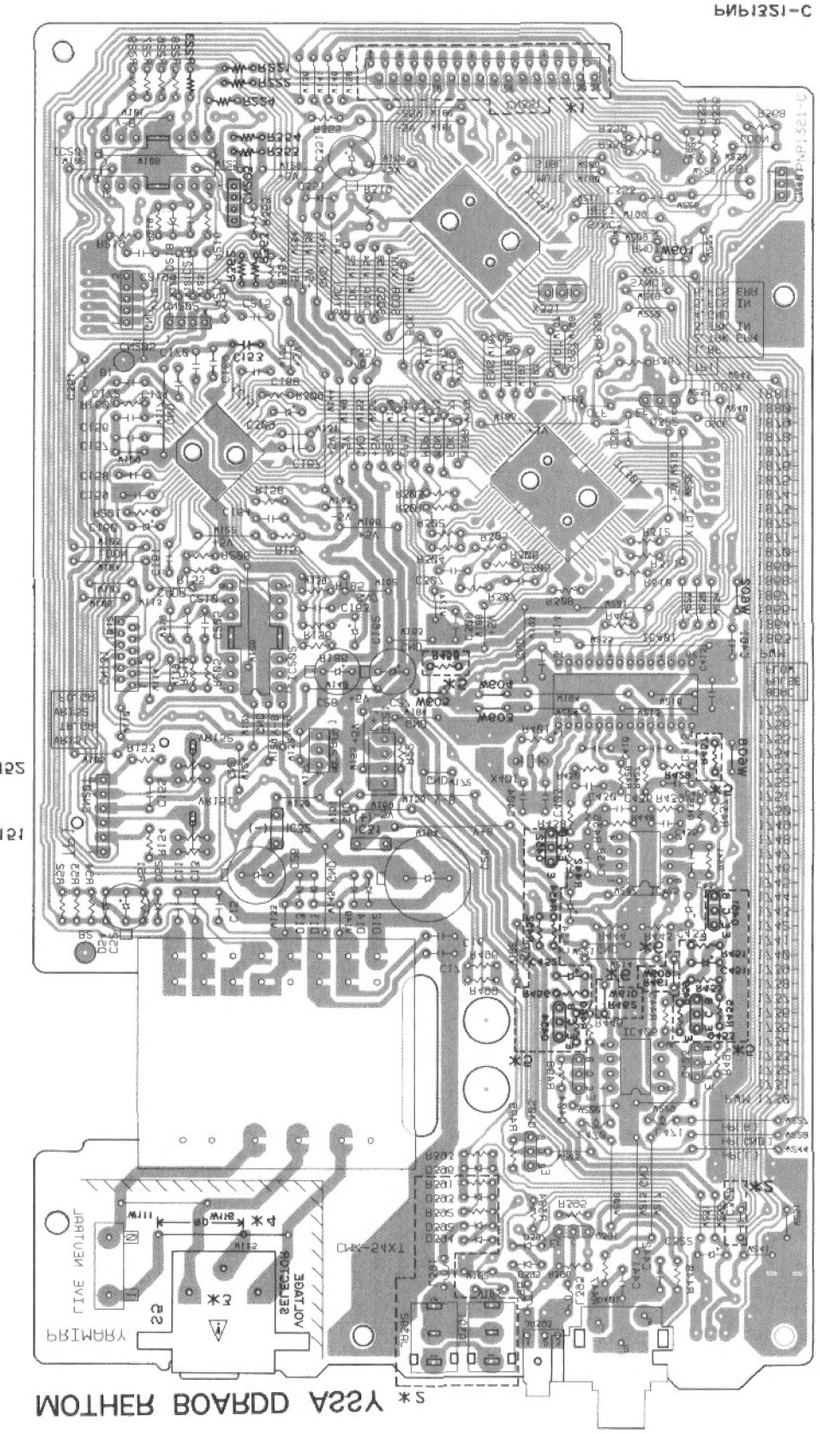
*4

*3 : PD – M603\RD, RDXL ONLY
*5 : PD – M603\MEMXL, MBW ONLY

CN101	8P04S – 35E	8P04S – 30E
CN301	8P04S – 35C	8P04S – 30C
	PD – M603	PD – M203

*1

PWB:251-C



PD-M603, PD-M203

• This diagram is viewed from the foil side.

1. SAFETY INFORMATION

(FOR EUROPEAN MODEL ONLY)

VARO!
AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

ADVERSEL:
USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING!
OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

LASER
Kuva 1
Lasersateilyn varoitusmerkki

WARNING!
DEVICE INCLUDES LASER DIODE WHICH EMITS INVISIBLE INFRARED RADIATION WHICH IS DANGEROUS TO EYES. THERE IS A WARNING SIGN ACCORDING TO PICTURE 1 INSIDE THE DEVICE CLOSE TO THE LASER DIODE.

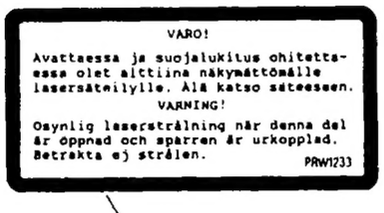
IMPORTANT
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

LASER DIODE CHARACTERISTICS
MAXIMUM OUTPUT POWER: 5 mw
WAVELENGTH: 780-785 nm

LASER
Picture 1
Warning sign for laser radiation

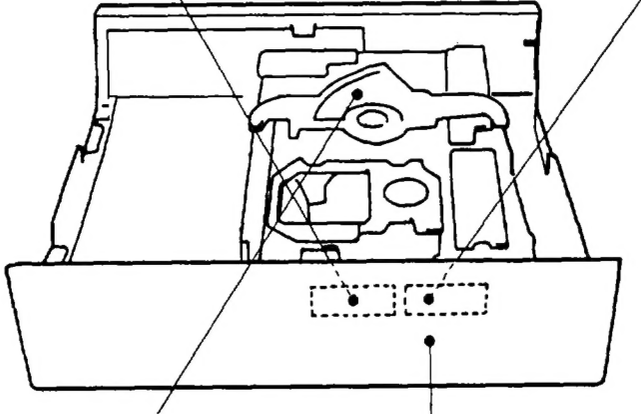
LABEL CHECK (MULTI MAGAZINE type)

WEMXJ type

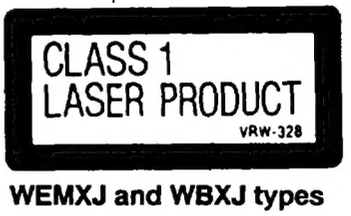


WEMXJ type

WBXJ type



WEMXJ and WBXJ types



WEMXJ and WBXJ types

Additional Laser Caution

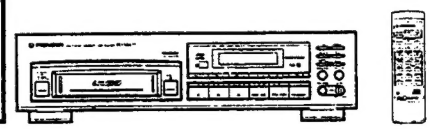
1. Laser Interlock Mechanism
   The ON/OFF (ON : low level, OFF : high level) status of S601 (LPS1) and S602 (LPS2) switches for detecting the loading state is detected by the system microprocessor, and the design prevents laser diode oscillation except when both switches S601 and S602 are ON (low level or clamped state).
   Thus, interlock will no longer function if switches S601 (LPS1) and S602 (LPS2) are deliberately shorted (low level). The interlock also does not function in the test mode *.
   Laser diode oscillation will continue, if pin 1 of M51593FP (IC101) on the PRE AMP BOARD ASSY mounted on the pickup assembly is connected to GND, or pin 19 is connected to low level (ON), or else the terminals of Q101 are shorted to each other (fault condition).

2. When the cover is opened with the servo mechanism block removed and turned over, close viewing of the objective lens with the naked eye will cause exposure to a Class 1 laser beam. '92M1B

* Refer to page 26 on the service manual RRV1070.

PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
RRV1070

MULTI-PLAY COMPACT DISC PLAYER

PD-M603

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	PD-M603		
KUXJ	○	AC120V	
KCXJ	○	AC120V	

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 300 Allstate Parkway Markham, Ontario L3R 0P2 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Haven 1087 Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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T – SSG FEB. 1994 Printed in Japan

4226

1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

NOTICE
(FOR CANADIAN MODEL ONLY)
Fuse symbols -▮▭▭- (fast operating fuse) and/or -▮▭▭- (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE
(POUR MODÈLE CANADIEN SEULEMENT)
Les symboles de fusible -▮▭▭- (fusible de type rapide) et/ou -▮▭▭- (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

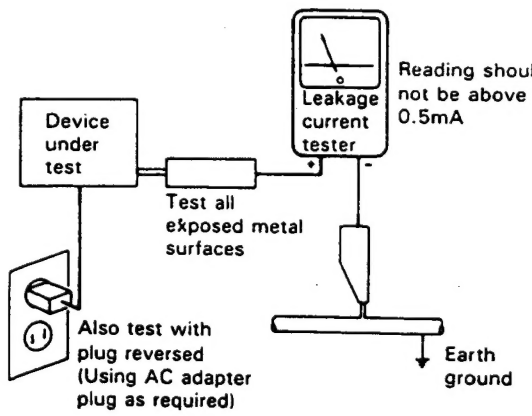
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

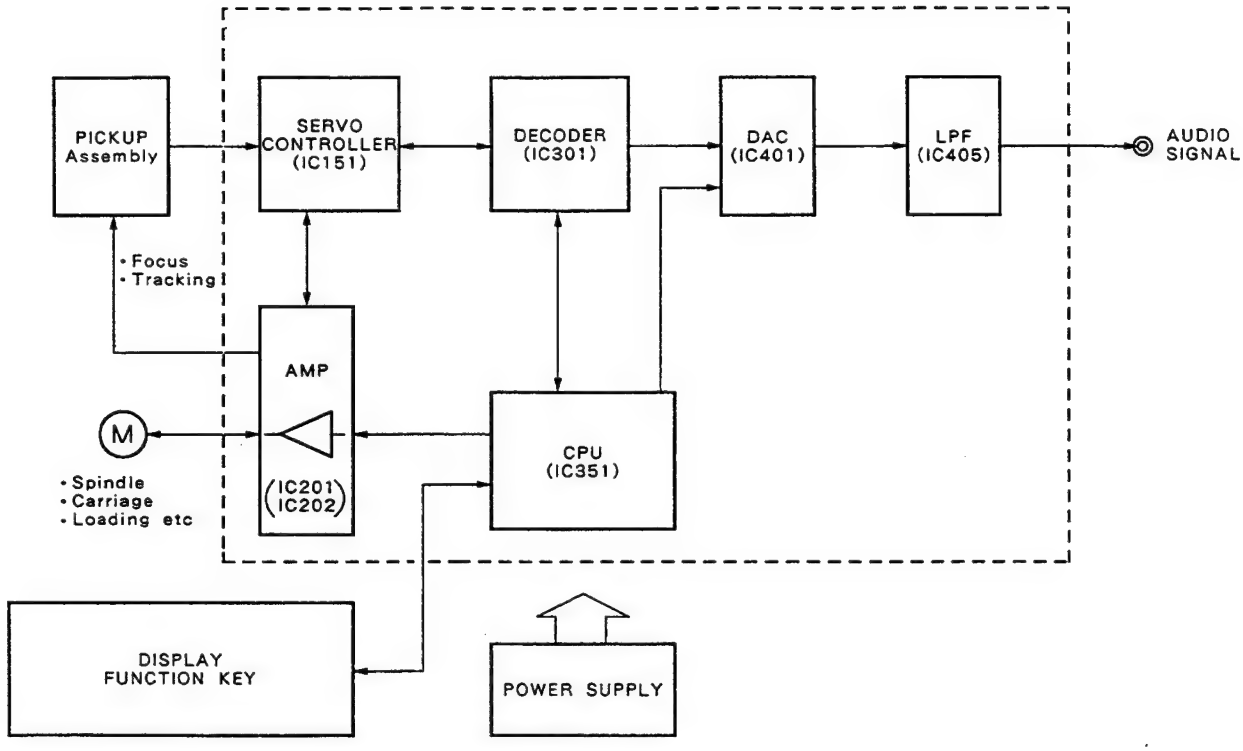
2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. BLOCK DIAGRAM



3. EXPLODED VIEWS, PACKING AND PARTS LIST

NOTES:

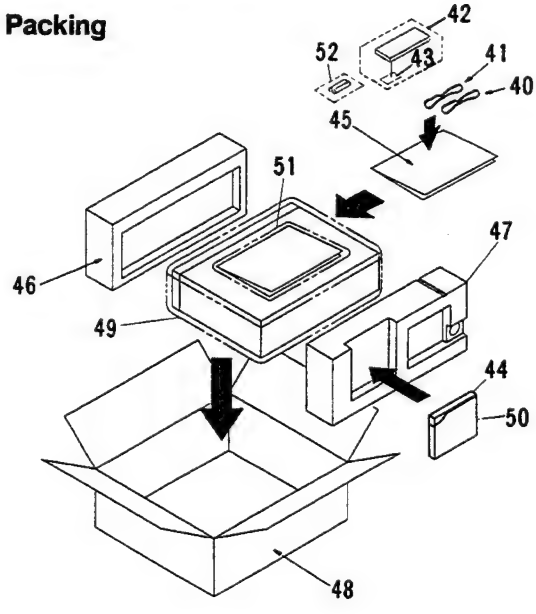
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

3.1 EXTERIOR AND PACKING

Parts List

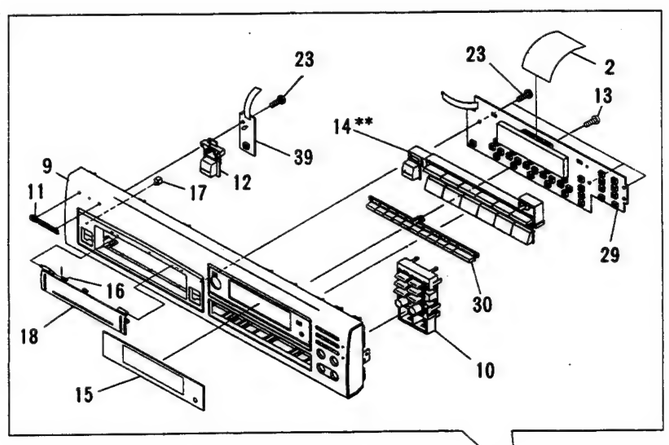
Mark	No.	Description	Part No.
⚠	1	Strain Relief (PD – M603/KUXJ)	CM – 22C
⚠	1	Strain Relief (PD – M603/KCXJ)	CM – 22
	2	32P F.F.C/30V	PDD1125
⚠	3	Power Transformer	PTT1237
⚠	4	Power Cord with Plug (PD – M603/KUXJ)	PDG1002
⚠	4	Power Cord with Plug (PD – M603/KCXJ)	RDG1010
	5	Bonnet	PYY1149
	6	Insulator	PNW1912
	7	Screw	IBZ30P080FCC
	8	Knob (Headphone)	PAC1707
	9	Function Panel	PNW2459
	10	Mode Button	PAC1709
	11	Name Plate	PAM1608
	12	Power Button	PAC1719
	13	Screw	BBZ26P120FZK
	14	Function Button	PAC1717
	15	Display Window	PAM1607
	16	Spring (Door)	PBH1022
	17	LED Lens	PNW2019
	18	Door BK	PNW2264
NSP	19	Headphone Board Assy	PWZ2524
⚠	20	Mother Board Assy	PWM1866
	21	Screw	BBZ30P060FMC
	22	Screw	BBZ30P080FZK
	23	Screw	PPZ30P120FMC
	24	Screw	FBT40P080FZK
	25	Screw	IBZ30P060FCC
	26	Screw	IBZ30P100FCC
	27	Screw	IBZ30P180FMC
	28	Screw	PDZ30P050FMC
	29	Function Board Assy	PWZ2814
	30	Ten Key 2	PAC1735
	31	65 Label (PD – M603/KUXJ Only)	ORW1069
	32	Binder	Z09 – 056
	33	Rear Base (PD – M603/KUXJ)	PNA2095
	33	Rear Base (PD – M603/KCXJ)	PNA2096
	34	Earth Lead Unit	XDF – 502
NSP	35	PCB Mould	AMR1525
NSP	36	Under Base	PNA1751
NSP	37	Multi Mechanism Assy	PXA1469
NSP	38	Flat Cable (6P)	D20PYY0615E
NSP	39	Switch Board Assy	PWZ2520
	40	Connection Cord with Mini Plug (for SR cord)	PDE – 319
	41	Connection Cord with Pin Plug (for Audio)	PDE1109
	42	Remote Control Unit	PWW1068
	43	Battery Cover	PZN1010
	44	Magazine Assy	PXA1504
	45	Operating Instructions (English) (PD – M603/KUXJ)	PRB1209
	45	Operating Instructions (English/French) (PD – M603/KCXJ)	PRE1198
	46	Styrol Protector (F)	PHA1228
	47	Styrol Protector (R)	PHA1229
	48	CD Packing Case (PD – M603/KUXJ)	PHG2014
	48	CD Packing Case (PD – M603/KCXJ)	PHG2015
	49	Mirror Mat Sheet	Z23 – 007
	50	PP Case	PYY1169
	51	Bag	Z21 – 038
NSP	52	Dry Cell Battery (R03, AAA)	VEM – 022

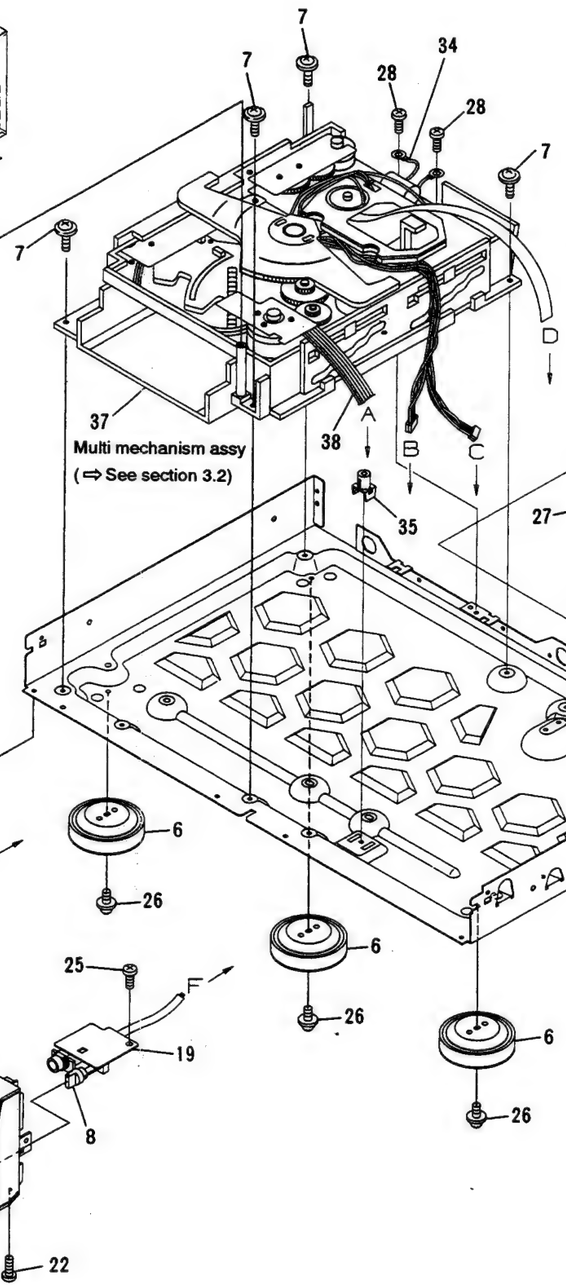
Packing

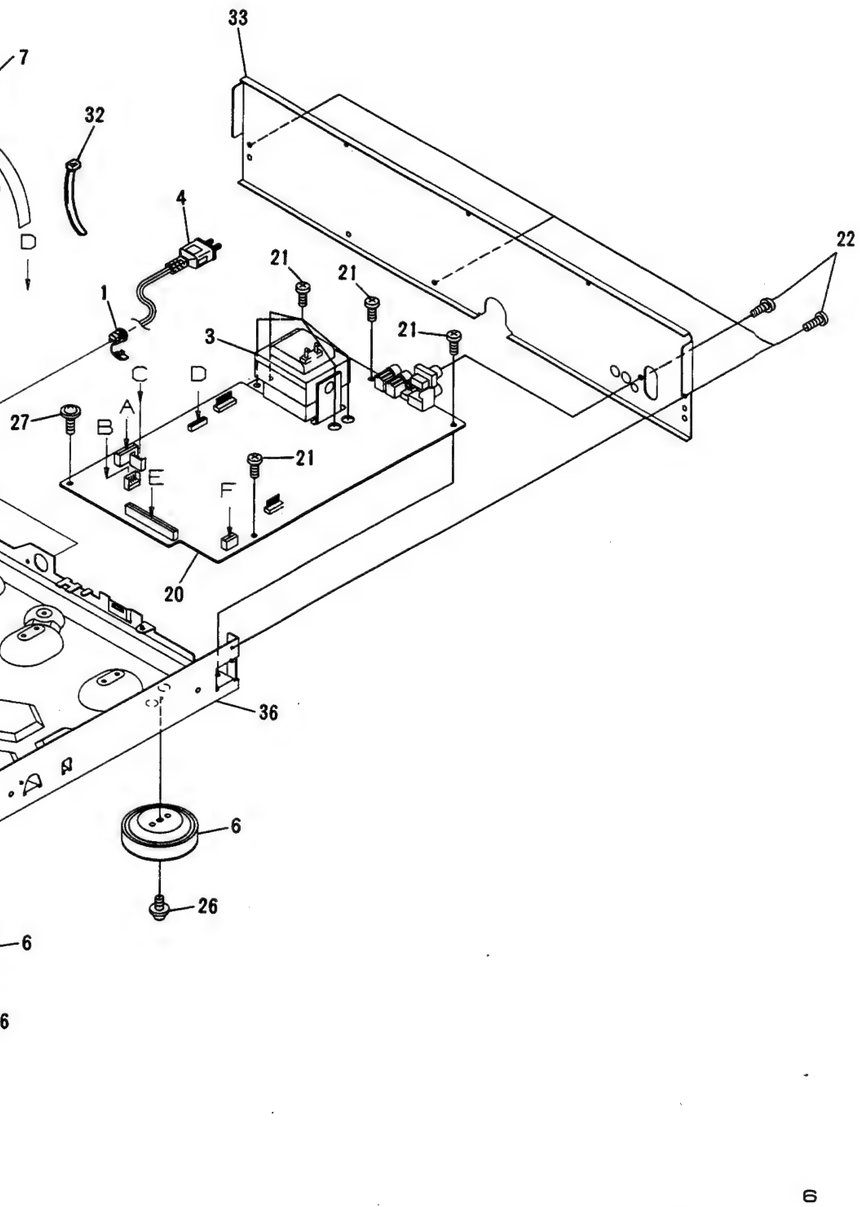


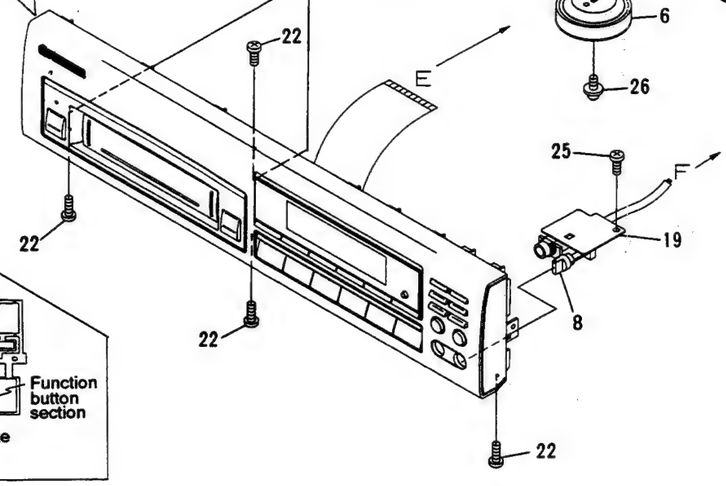
Exterior

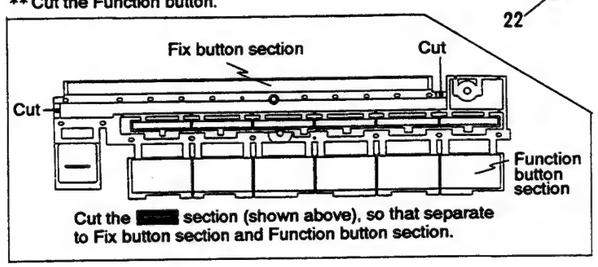
NOTE: Screws adjacent to ▼ mark on the product are used for disassembly.



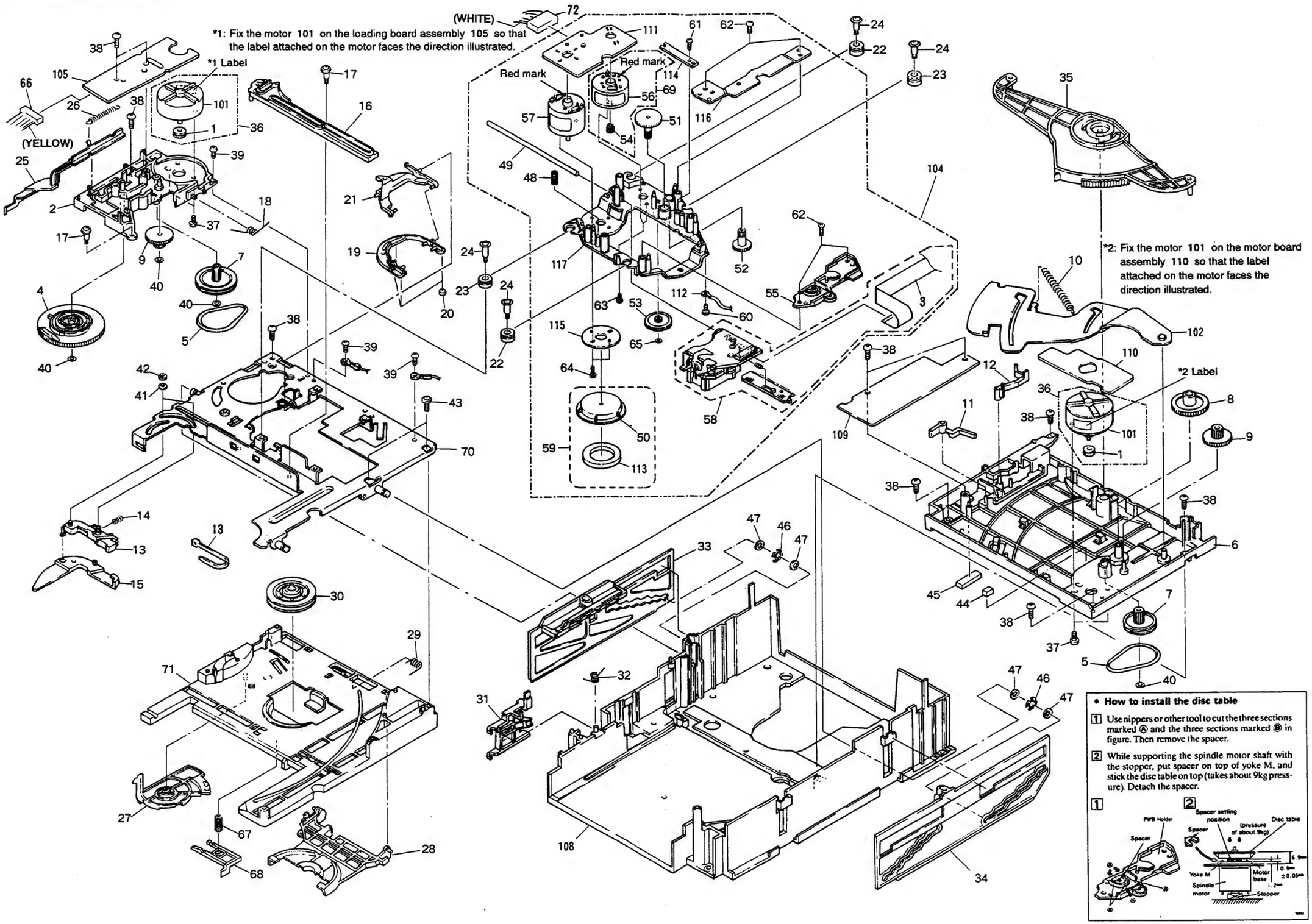








3.2 MULTI MECHANISM ASSY

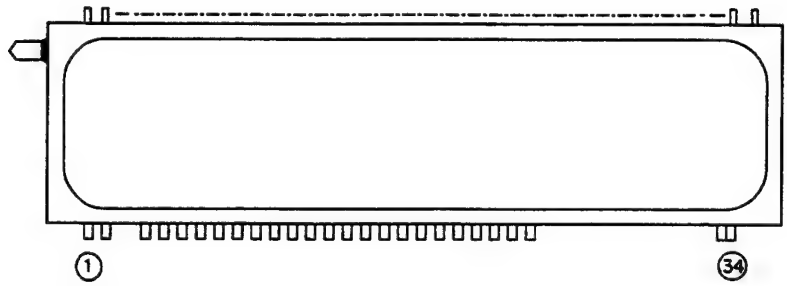


Parts List

Mark	No.	Description	Part No.
	1	Motor Pulley	PNW1634
	2	Gear Holder	PNW1929
	3	PU Frexible Cable	PNP1343
	4	Cam Gear	PNW1923
	5	Belt	PEB1138
	6	Top Guide N	PNW2441
	7	Gear Pulley	PNW1918
	8	Gear S	PNW1919
	9	Gear L	PNW1920
	10	Eject Spring	PBH1107
	11	Switch Lever	PNW1927
	12	Seven Bar	PNW1931
	13	Sub Rotary Lever	PNW1933
	14	Sub Rotary Lever Spring	PBH1111
	15	Rotary Lever	PNW1932
	16	Drive Plate	PNW1930
	17	Motor Screw	PBA-112
	18	Holder Lever Spring	PBH1110
	19	Disc Holder	PNW1924
	20	Cushion A	PED1001
	21	Holder Lever	PNW1925
	22	Float Rubber	PEB1014
	23	Float Rubber	PEB1132
	24	Float Screw	PBA1073
	25	Release Lever	PNW1934
	26	Release Spring	PBH1106
	27	Clamper Cam	PNW1922
	28	Clamper Holder	PNW1921
	29	Clamper Spring	PBH1109
	30	Clamper	PNW1857
	31	Lock Lever	PNW1917
	32	Lock Spring	PBH1108
	33	Stair NL	PNW2443
	34	Stair NR	PNW2444
	35	Synchronize Lever	PNW1926
	36	Motor Assy (LOADING, DISC SELECT)	PEA1130
	37	Screw	PMZ26P040FMC
	38	Screw	PPZ30P080FMC
	39	Screw	BBZ30P060FMC
	40	Washer	WT26D047D025
	41	Washer	WA31D054D025
	42	E ring	Z39-010
	43	Screw	IPZ30P080FMC
	44	Rubber Spacer	PEB1238
	45	Rubber Spacer	PEB1179
	46	Silent Ring	PBK1093
	47	Washer	WA62D130D025
	48	Earth Spring	PBH1132
	49	Guide Bar	PLA1094
	50	Disc Table	PNW1067
	51	Gear 1	PNW2052
	52	Gear 2	PNW2053
	53	Gear 3	PNW2054
	54	Pinion Gear	PNW2055
	55	PWB Holder	PNW2057
NSP	56	Carriage DC Motor / 0.3W	PXM1027
	57	D.C. Motor Assy (spindle, with oil)	PEA1235
	58	Pickup Assy	PEA1179
	59	Disc Table Assy	PEA1035
	60	Screw	BBZ26P060FMC
	61	Screw	BPZ20P060FMC
	62	Screw	BPZ26P100FMC
	63	Screw	JFZ17P025FZK
	64	Screw	JFZ20P040FMC
	65	Washer	WT12D032D025
	66	2mm Pitch Connector Assy 4P	PDE1241
	67	Stopper Spring	PBH1131
	68	Stopper	PNW2069
	69	D.C. Motor Assy (CARRIAGE)	PEA1246
	70	Upper Chassis	PNB1267
	71	Sub Chassis N	PNW2440
	72	2mm Pitch Connector Assy 4P	PDE1240
	73	Binder	REC - 371
NSP	101	Motor	VXM1033
NSP	102	Eject Lever	PNB1306
	103	• • • • •	
NSP	104	Servo Mechanism Assy M	PXA1417
NSP	105	Loading Board Assy	PWZ2038
	106	• • • • •	
	107	• • • • •	
NSP	108	Main Chassis	PNW2074
NSP	109	Select Board Assy	PWZ2533
NSP	110	Motor Board Assy	PWZ2040
NSP	111	Mechanism Board Assy	PWX1192
NSP	112	Earth Lead Unit	PDF1074
NSP	113	Clamp Magnet	PMF1014
NSP	114	Gear Stopper	PNB1303
NSP	115	Yoke M	PNB1312
NSP	116	AV Angle	PNB1405
	117	Carriage Base	PNW1445

4. FL INFORMATION

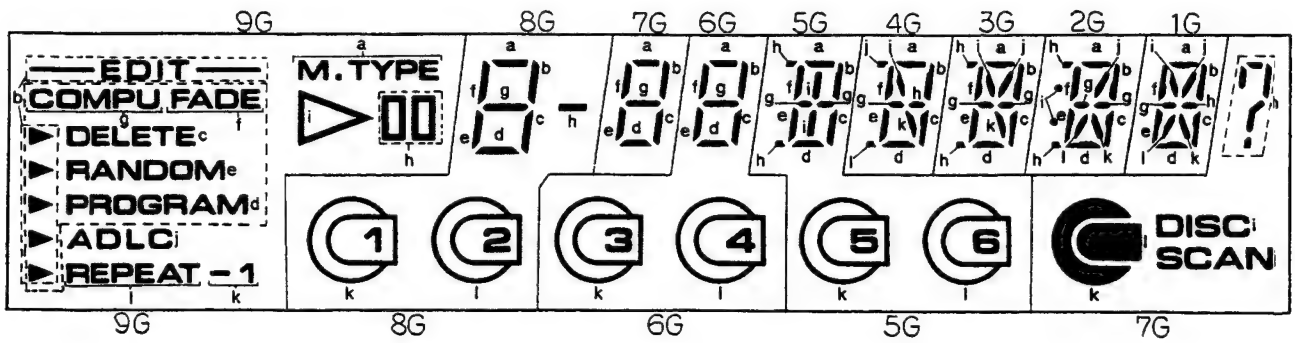
■ PEL1084 (V701)

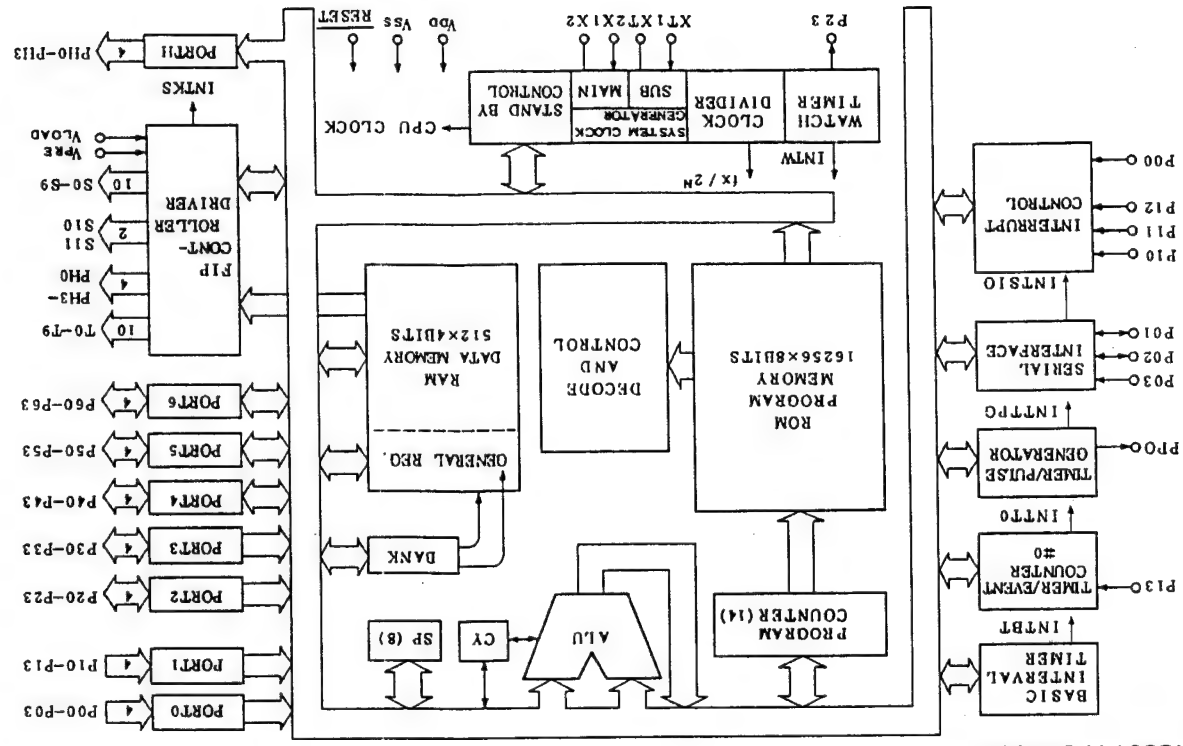


PIN CONNECTION

TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
ELECTRODE	F1	F1	NP	P (e)	P (f)	P (g)	P (h)	P (a)	P (b)	P (c)	P (d)	P (i)	P (j)	P (k)	P (l)	NC	9G	8G	
TERMINAL NO.				19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
ELECTRODE				7G	6G	5G	4G	3G	2G	1G	NX	NX	NX	NX	NX	NX	NP	NX	F2

Notes F: Filament NP: No Pin
G: Grid NC: No Connection
P: Anode NX: No Extend pin





● Pin Function
(IC351 : PD4458A)
System control IC

No.	Pin Name	Function
1	RESET	Reset input.
2-11	T0-T9	Digit output.
12-15	PH3-PH0	Port H.
16,17	S11,S10	Segment output.
18	VLOAD	Power supply terminal for FIP driver.
19	VPRE	Power supply terminal for FIP driver.
20-25	S9-S4	Segment output.
26	VDD	+ Power supply terminal.
27-30	S3-S0	Segment output.
31-34	P00-P03	Port 0.
35-38	P10-P13	Port 1.
39-42	P20-P23	Port 2.
43-46	P30-P33	Port 3.
47-50	P60-P63	Port 6.
51-54	P40-P43	Port 4.
55	PPO	Pulse output.
56,57	X1,X2	Clock oscillation terminal of Main system.
58	Vss	Ground
59,60	XT1,XT2	Clock oscillation terminal of Sub system.
61-64	P50-P53	Port 5.

5. SCHEMATIC DIAGRAM

5.1 Waveforms

Note: The encircled numbers denote measuring points in the schematic diagram.

*1 50T-JUMP:After switching to the pause mode, press the manual search key.
*2 FOCUS-IN:Press the key without loading a disc.

② TP1-Pin 1:PLAY MODE (RF)
500mV/div 500nsec/div
– GND

⑤ IC202-Pin 3 :FOCUS-IN (*2) MODE (FODR)
1V/div 200msec/div
– GND

⑦ IC201-Pin 9:TRACK SEARCH MODE (SPDR)
2V/div 50msec/div
– GND

⑪ IC401-Pin 10:PLAY MODE (1kHz) (LO) (D/A DATA OUT)
1V/div 200 μsec/div
– GND

㉒

② TP1-Pin 1:TRACK SEARCH MODE (RF)
500mV/div 200 μsec/div
– GND

⑤ IC202-Pin 3 :PLAY MODE (FODR)
1V/div 1msec/div
– GND

⑧ IC202-Pin 9 :PLAY MODE (CADR)
1V/div 2sec/div
– GND

⑯ IC301-Pin 35:PLAY MODE (1kHz) (BCLK)
2V/div 500nsec/div
– GND

㉒

③ TP1-Pin 6:PLAY MODE (FOER)
100mV/div 10msec/div
– GND

⑥ IC202-Pin 4:PLAY MODE (TRDR)
500mV/div 1msec/div
– GND

⑧ IC202-Pin 9 :TRACK SEARCH MODE (CADR)
2V/div 200msec/div
– GND

⑱ IC301-Pin 32:PLAY MODE (1kHz) (LRCK)
2V/div 10 μsec/div
– GND

㉓ :TRACK SEARCH
Upper:TP1-Pin 1 (RF
Lower: IC151-Pin 29
2V/div 200

④ TP1-Pin 2:PLAY MODE (TRER)
1V/div 10msec/div
– GND

⑥ IC202-Pin 4:50T-JUMP (*1) MODE (TRDR)
500mV/div 1msec/div
– GND

⑨ IC151-Pin 32:PLAY MODE (EFM)
2V/div 500nsec/div
– GND

⑲ IC301-Pin 34:PLAY MODE (1kHz) (DATA)
2V/div 500nsec/div
– GND

㉔ :PLAY M
Upper:TP1-Pin 1 (RF
Lower: IC151-Pin 30
5V/div 200

④ TP1-Pin 2:50T-JUMP (*1) MODE (TRER)
1V/div 1msec/div
– GND

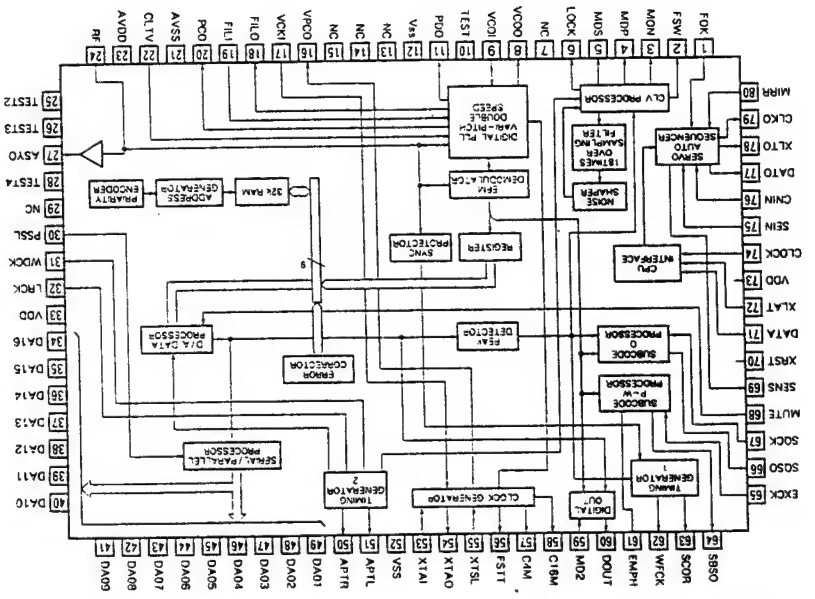
⑦ IC201-Pin 9:PLAY MODE (SPDR)
1V/div 50msec/div
– GND

⑩ IC401-Pin 9:PLAY MODE (1kHz) ($\overline{LO}$) (D/A DATA OUT)
1V/div 200 μsec/div
– GND

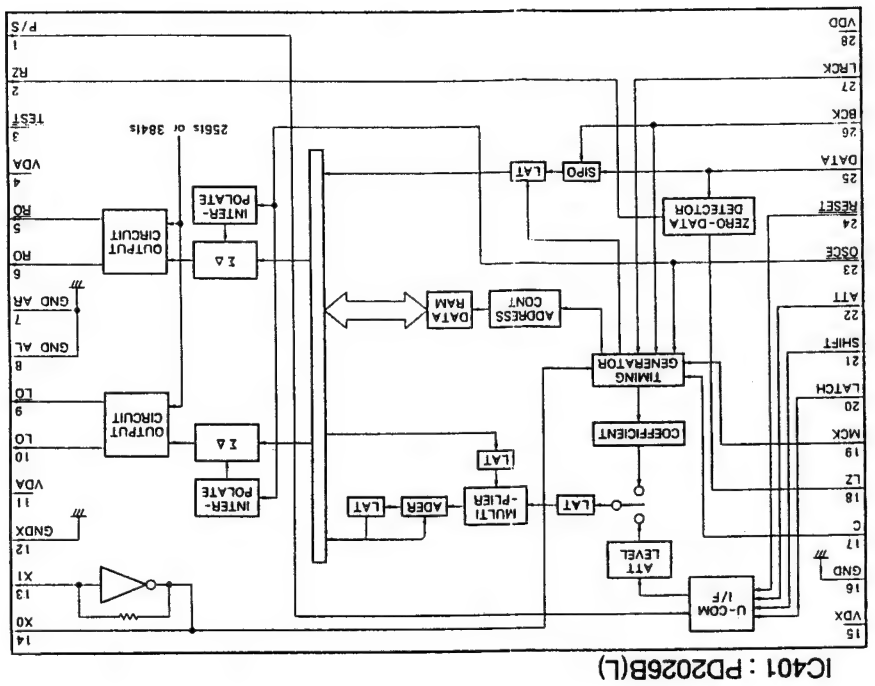
㉑ Pin-OUTPUT:PLAY MODE(1kHz)
1V/div 200 μsec/div
– GND

㉕

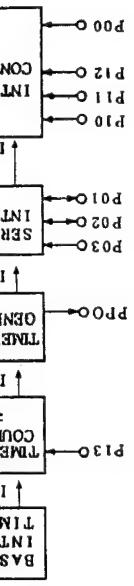
● IC BLOCK DIAGRAMS



IC301 : CXD2500BQ



IC401 : PD2026B(L)



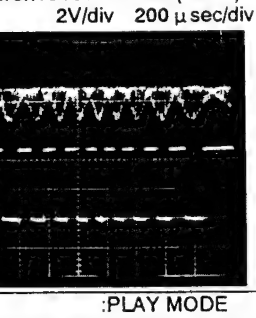
IC351 : PD4

NOTE FOR SCHEMATIC DIAGRAMS (Type 4A)

1. **When ordering service parts, be sure to refer to "PARTS LIST of EXPLODED VIEWS" or "PCB PARTS LIST".**
2. **Since these are basic circuits, some parts of them or the values of some components may be changed for improvement.**
3. **RESISTORS:**
   Unit: k:kΩ, M:MΩ, or Ω unless otherwise noted.
   Rated power: 1/4W, 1/6W, 1/8W, 1/10W unless otherwise noted.
   Tolerance: (F): ±1%, (G): ±2%, (K): ±10%, (M): ±20% or ±5% unless otherwise noted.
4. **CAPACITORS:**
   Unit: p:pF or μF unless otherwise noted.
   Ratings: capacitor (μF)/ voltage (V) unless otherwise noted.
   Rated voltage: 50V except for electrolytic capacitors.
5. **COILS:**
   Unit: m:mH or μH unless otherwise noted.
6. **VOLTAGE AND CURRENT:**
   ▭ or ⊢ V :
   DC voltage (V) in PLAY mode unless otherwise noted.
   ⇦ mA or ⊢ mA :
   DC current in PLAY mode unless otherwise noted.
   Value in ( ) is DC current in STOP mode.
7. **OTHERS:**
   - ⊘ or ⊘ : Adjusting point.
   - ◁ : Measurement point.
   - The ⚠ mark found on some component parts indicates the importance of the safety factor of the parts. Therefore, when replacing, be sure to use parts of identical designation.
8. **SCH—□ ON THE SCHEMATIC DIAGRAM:**
   - SCH—□ indicates the drawing number of the schematic diagram. (SCH stands for schematic diagram.)
9. **SWITCHES** (Underline indicates switch position):

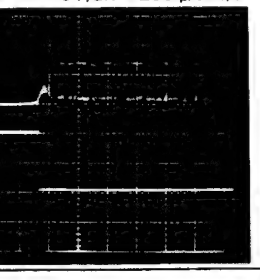
FUNCTION BOARD ASSY
S702 : EJECT ▲
S703 : DISC 2
S704 : DISC 1
S705 : AUTO FADER
S706 : DELETE
S708 : PROGRAM
S709 : 1
S710 : 2
S711 : 3
S712 : 4
S713 : 5
S714 : 6
S715 : 7
S716 : 8
S717 : 9
S718 : 10
S719 : >10
S721 : COMPU TIME FADE
S722 : HI – LITE
S723 : DISC 3
S724 : DISC 4
S725 : ADLC
S726 : MUSIC TYPE
S727 : DISC 5
S728 : DISC 6
S729 : PAUSE ▮▮
S730 : REPEAT
S731 : STOP ■
S732 : TIME
S733 : PLAY ▶
S734 : RANDOM
S735 : ⏮◀◀
S736 : ▶▶⏭
SWITCH BOARD ASSY
S801 : POWER
LOADING BOARD ASSY
S601 : LPS1
S602 : LPS2

:TRACK SEARCH MODE
per:TP1 - Pin 1 (RF) 1V/div
wer: IC151 - Pin 29 (MIRR)
2V/div 200 μ sec/div



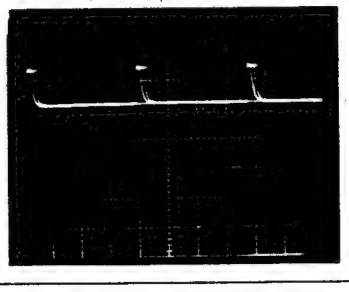
– GND
– GND

:PLAY MODE
pper:TP1 - Pin 1 (RF) 1V/div
wer: IC151 - Pin 30 (DFCT)
5V/div 200 μ sec/div



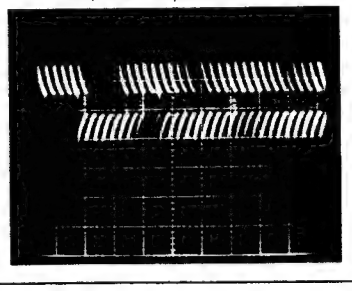
– GND
– GND

(33) IC301 - Pin 4:PLAY MODE
(MDP)
2V/div 2 μ sec/div

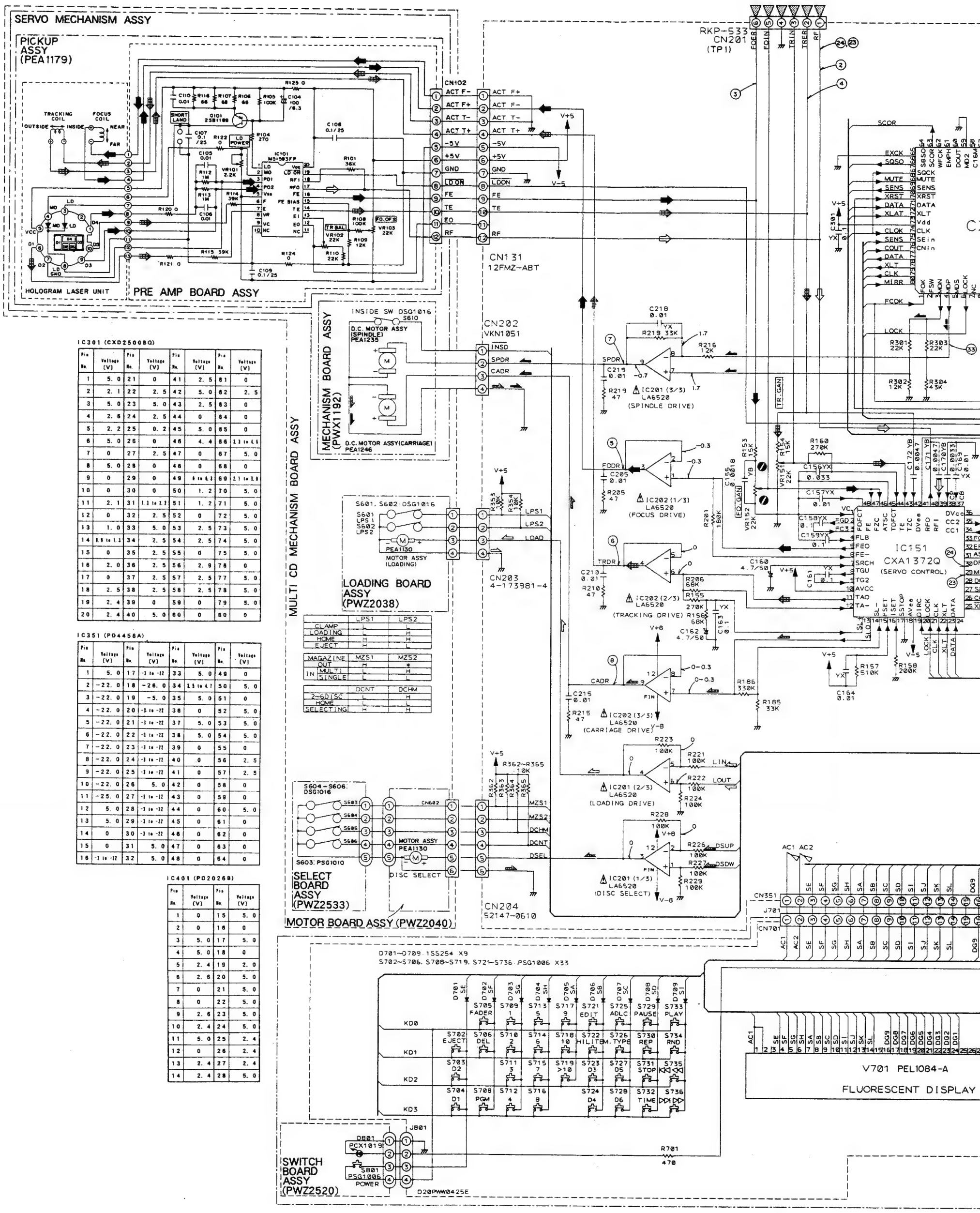


– GND

(53) IC301 - Pin 20:PLAY MODE
(PCO)
2V/div 10 μ sec/div



– GND



IC301 (CXD2500BQ)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	5.0	21	0	41	2.5	61	0
2	2.1	22	2.5	42	5.0	62	2.5
3	5.0	23	5.0	43	2.5	63	0
4	2.6	24	2.5	44	0	64	0
5	2.2	25	0.2	45	5.0	65	0
6	5.0	26	0	46	4.4	66	1.1 to 1.1
7	0	27	2.5	47	0	67	5.0
8	5.0	28	0	48	0	68	0
9	0	29	0	49	0 to 0.3	69	2.1 to 2.8
10	0	30	0	50	1.2	70	5.0
11	2.1	31	1.1 to 2.2	51	1.2	71	5.0
12	0	32	2.5	52	0	72	5.0
13	1.0	33	5.0	53	2.5	73	5.0
14	0.9 to 1.1	34	2.5	54	2.5	74	5.0
15	0	35	2.5	55	0	75	5.0
16	2.0	36	2.5	56	2.9	76	0
17	0	37	2.5	57	2.5	77	5.0
18	2.5	38	2.5	58	2.5	78	5.0
19	2.4	39	0	59	0	79	5.0
20	2.4	40	5.0	60	0	80	0

IC351 (PD4458A)

Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	5.0	17	-1 to -2.2	33	5.0	49	0
2	-22.0	18	-26.0	34	1.5 to 4.7	50	5.0
3	-22.0	19	-5.0	35	5.0	51	0
4	-22.0	20	-1 to -2.2	36	0	52	5.0
5	-22.0	21	-1 to -2.2	37	5.0	53	5.0
6	-22.0	22	-1 to -2.2	38	5.0	54	5.0
7	-22.0	23	-1 to -2.2	39	0	55	0
8	-22.0	24	-1 to -2.2	40	0	56	2.5
9	-22.0	25	-1 to -2.2	41	0	57	2.5
10	-22.0	26	5.0	42	0	58	0
11	-25.0	27	-1 to -2.2	43	0	59	0
12	5.0	28	-1 to -2.2	44	0	60	5.0
13	5.0	29	-1 to -2.2	45	0	61	0
14	0	30	-1 to -2.2	46	0	62	0
15	0	31	5.0	47	0	63	0
16	-1 to -2.2	32	5.0	48	0	64	0

IC401 (PD2026B)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	15	5.0
2	0	16	0
3	5.0	17	5.0
4	5.0	18	0
5	2.4	19	2.0
6	2.6	20	5.0
7	0	21	5.0
8	0	22	5.0
9	2.6	23	5.0
10	2.4	24	5.0
11	5.0	25	2.4
12	0	26	2.4
13	2.4	27	2.4
14	2.4	28	5.0

	LPS1	LPS2
CLAMP	L	H
LOADING	L	H
HOME	H	H
EJECT	H	L

	MZS1	MZS2
OUT	H	*
IN MULTI	L	H
IN SINGLE	L	L

	DCNT	DCHM
2~6DISC	L	H
HOME	L	L
SELECTING	H	H

MOTHER BOARD ASSY (PWM1866)

RKP-533
CN201
(TP1)

TP2

CN102
CN131
12FMZ-ABT

IC301
CXD2500BQ
(DECODER)

PD20268 (L) C401
D/A CONVERTER

Q322:
INVERTER BUFFER

IC151
CXA1372Q
(SERVO CONTROL)

IC351
PD4458A
(SYSTEM CONTROL)

IC201 (3/3) LA6520
(SPINDLE DRIVE)

IC202 (1/3) LA6520
(FOCUS DRIVE)

IC202 (2/3) LA6520
(TRACKING DRIVE)

IC202 (3/3) LA6520
(CARRIAGE DRIVE)

IC201 (2/3) LA6520
(LOADING DRIVE)

IC201 (1/3) LA6520
(DISC SELECT)

INSIDE SW DSG1016 S610

D.C. MOTOR ASSY (SPINDLE) PEA1235

D.C. MOTOR ASSY(CARRIAGE) PEA1246

CN202
VKN1051

S601, S602 DSG1016

MOTOR ASSY (LOADING) PEA1130

CN203
4-173981-4

LOADING BOARD ASSY (PWZ2038)

	LPS1	LPS2
AMP	L	L
DING	L	H
OME	H	H
ECT	H	L

	MZS1	MZS2
AZINE	H	*
IT	L	H
ULTI	L	H
INGLE	L	L

	DCNT	DCHM
DISC	L	H
OME	L	L
CTING	H	H

S606
S603
S604
S605
S606
MOTOR ASSY PEA1130
DISC SELECT
CN602
CN204
52147-0610
MZS1
MZS2
DCHM
DCNT
DSEL

BOARD ASSY (PWZ2040)

D701~D709 1SS254 X9
S702~S706, S708~S719, S721~S736 PSG1006 X33

KD0 S705 FADER, S709 1, S713 5, S717 9, S721 EDIT, S725 ADLC, S729 PAUSE, S733 PLAY
KD1 S702 EJECT, S706 DEL, S710 2, S714 6, S718 10, S722 HILITE, S726 M.TYPE, S730 REP, S734 RND
KD2 S703 D2, S711 3, S715 7, S719 >10, S723 D3, S727 D5, S731 STOP, S735
KD3 S704 D1, S708 PGM, S712 4, S716 8, S724 D4, S728 D6, S732 TIME, S736

J801
D801 PCX1019
S801 PSG1006 POWER
D20PWW0425E

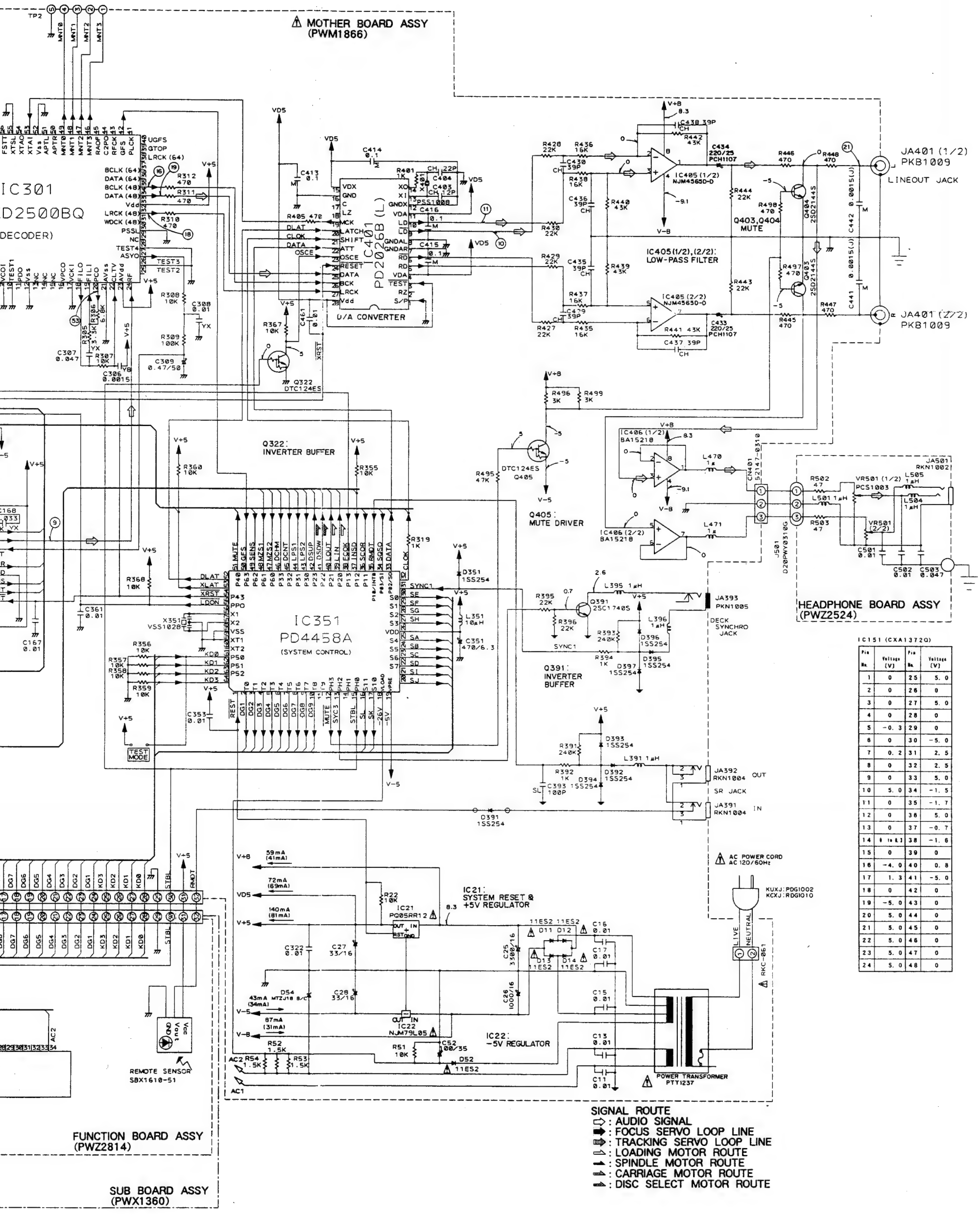
V701 PEL1084-A
FLUORESCENT DISPLAY

REMOTE SENSOR SBX1610-51

FUNCTION BOARD ASSY (PWZ2814)

SUB BOARD ASSY (PWX1360)

3 4 5 6



IC151 (CXA1372Q)

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	25	5.0
2	0	26	0
3	0	27	5.0
4	0	28	0
5	-0.3	29	0
6	0	30	-5.0
7	0.2	31	2.5
8	0	32	2.5
9	0	33	5.0
10	5.0	34	-1.5
11	0	35	-1.7
12	0	36	5.0
13	0	37	-0.7
14	0 to 0.1	38	-1.6
15	0	39	0
16	-4.0	40	0.8
17	1.3	41	-5.0
18	0	42	0
19	-5.0	43	0
20	5.0	44	0
21	5.0	45	0
22	5.0	46	0
23	5.0	47	0
24	5.0	48	0

6. PCB CONNECTION DIAGRAM

- **This diagram is viewed from the mounted parts side.**

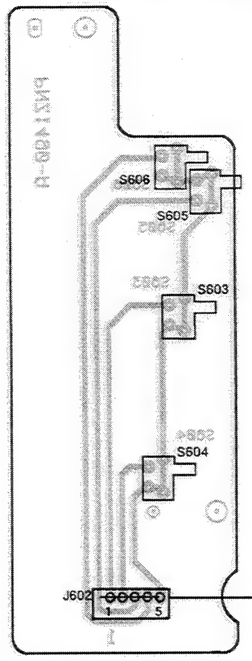
NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

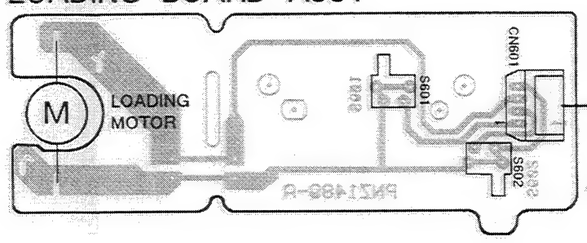
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
Q504 E C B Q504	Q504 Q504	Transistor
D203 D203	D203	Diode
C513 C513	C513	Capacitor (Polarized)

3. The transistor terminal marked with E or ⊏ shows the emitter.
4. The diode terminal marked with ⓐ or ⊐ shows cathode side.
5. The capacitor terminal marked with ⊖ or ⊏ shows negative terminal.

SELECT BOARD ASSY



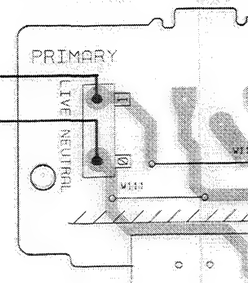
LOADING BOARD ASSY



TO MOTHER BOARD ASSY CN203

AC POWER CORD
AC 120V/60Hz

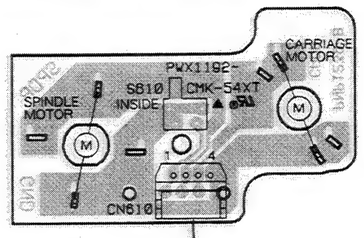
MOTHER BOAR



Q391

Q405

MECHANISM BOARD ASSY



Q403
Q404
IC406

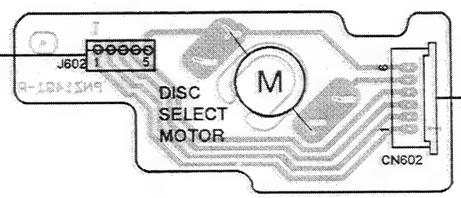
IC405

IC32,IC31

TO MOTHER BOARD ASSY CN202

IC22,IC21

MOTOR BOARS ASSY



IC401

TO PICKUP ASSY

IC202

TO MECHANISM BOARD ASSY CN610

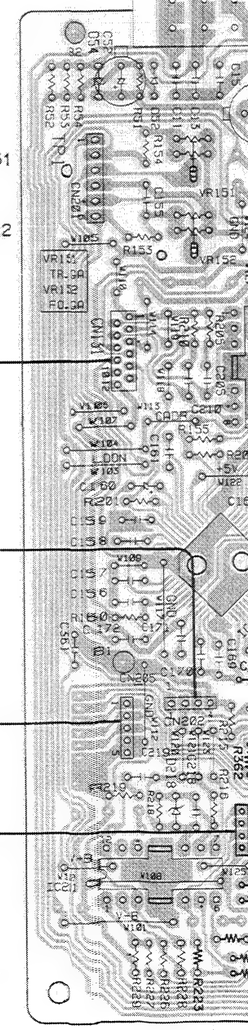
IC301

IC151

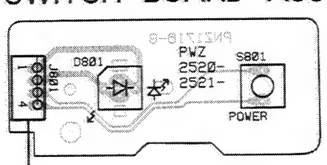
Q322

TO LOADING BOARD ASSY CN601

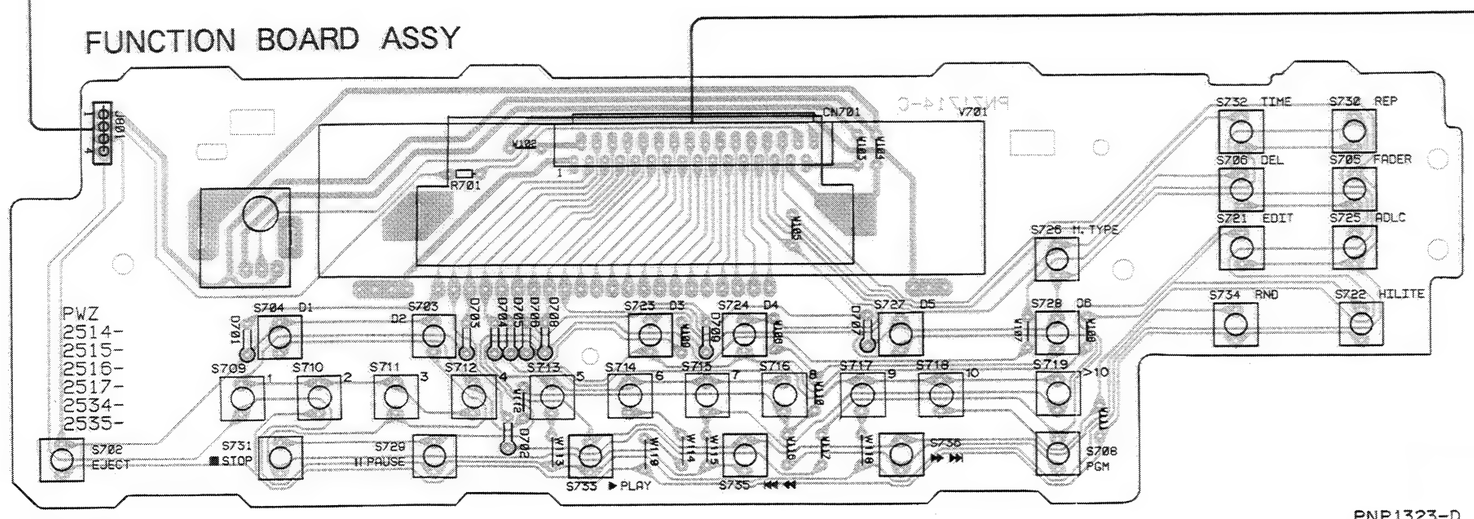
IC201



SWITCH BOARD ASSY



FUNCTION BOARD ASSY

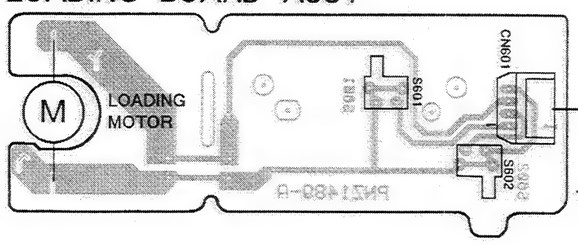


PNP1323-C

PNP1323-D

3 4 5 6 7 8 9

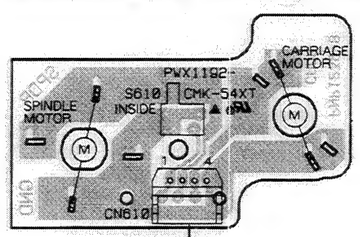
LOADING BOARD ASSY



TO MOTHER BOARD ASSY CN203

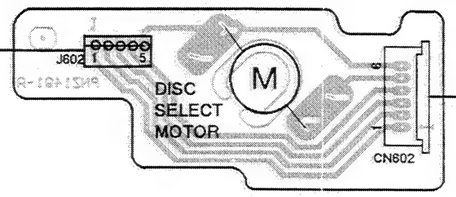
AC POWER CORD
AC 120V/60Hz

MECHANISM BOARD ASSY



TO MOTHER BOARD ASSY CN202

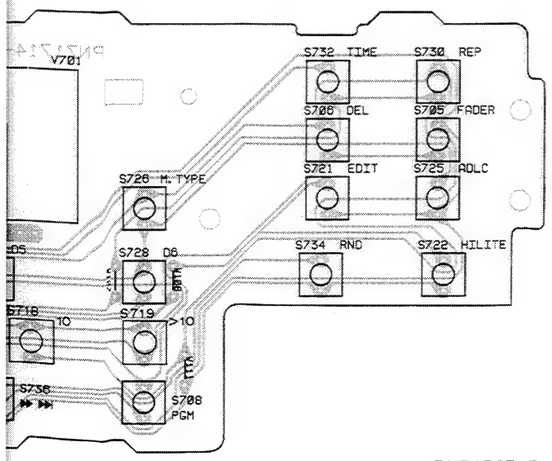
MOTOR BOARS ASSY



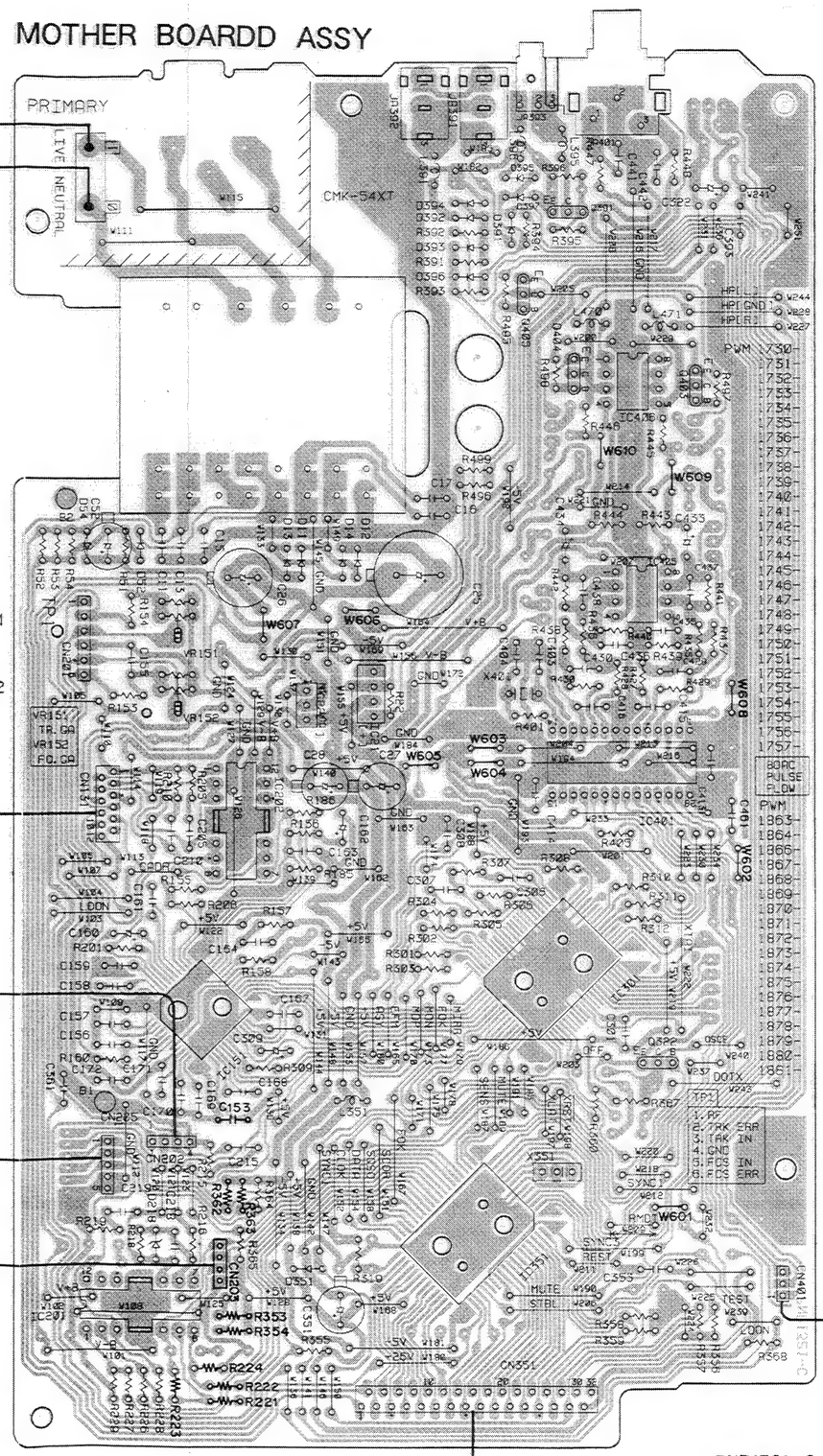
TO PICKUP ASSY IC202

TO MECHANISM BOARD ASSY CN610

TO LOADING. BOARD ASSY CN601



MOTHER BOARDD ASSY



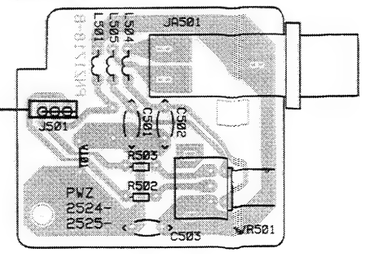
Q391
Q405
Q403
Q404
IC406
IC405
IC32,IC31
IC22,IC21
IC401
IC301
IC151
Q322
IC201

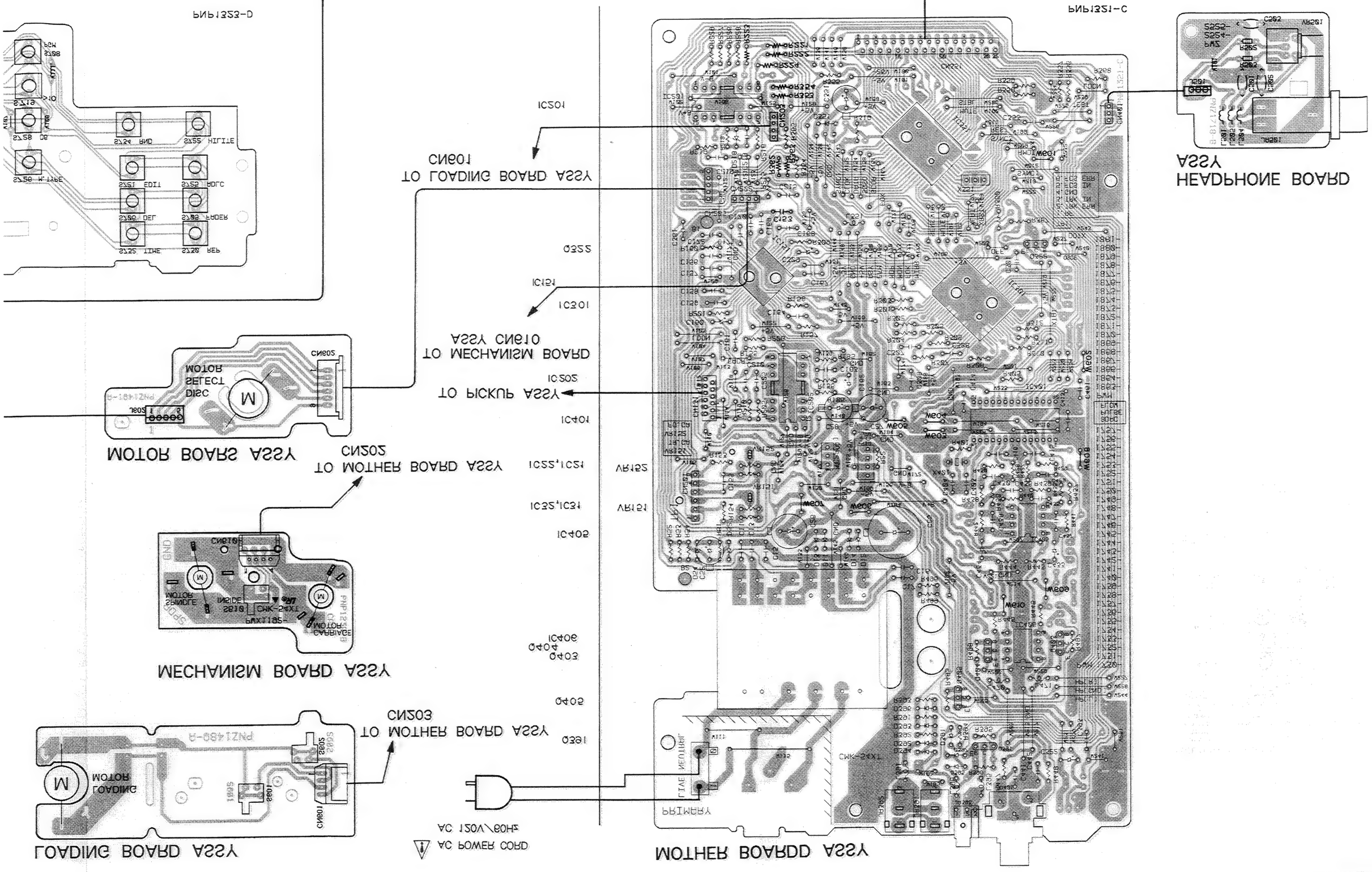
NOTE FOR PCB DIAGRAMS:

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
	IN OUT	3- terminal regulator

HEADPHONE BOARD ASSY




MOTOR BOARD ASSY
MOTOR SELECT DISC
CN605
TO MOTHER BOARD ASSY
CN502
MECHANISM BOARD ASSY
TO MECHANISM BOARD ASSY
CN601
TO LOADING BOARD ASSY
CN501
HEADPHONE BOARD ASSY
LOADING BOARD ASSY
MOTOR LOADING
CN603
TO MOTHER BOARD ASSY
AC POWER CORD
AC 120V\60Hz
MOTHER BOARDD ASSY
PRIMARY
SECONDARY
CWK-24XT
IC501
IC502
IC503
IC504
IC505
IC506
IC507
IC508
IC509
IC510
IC511
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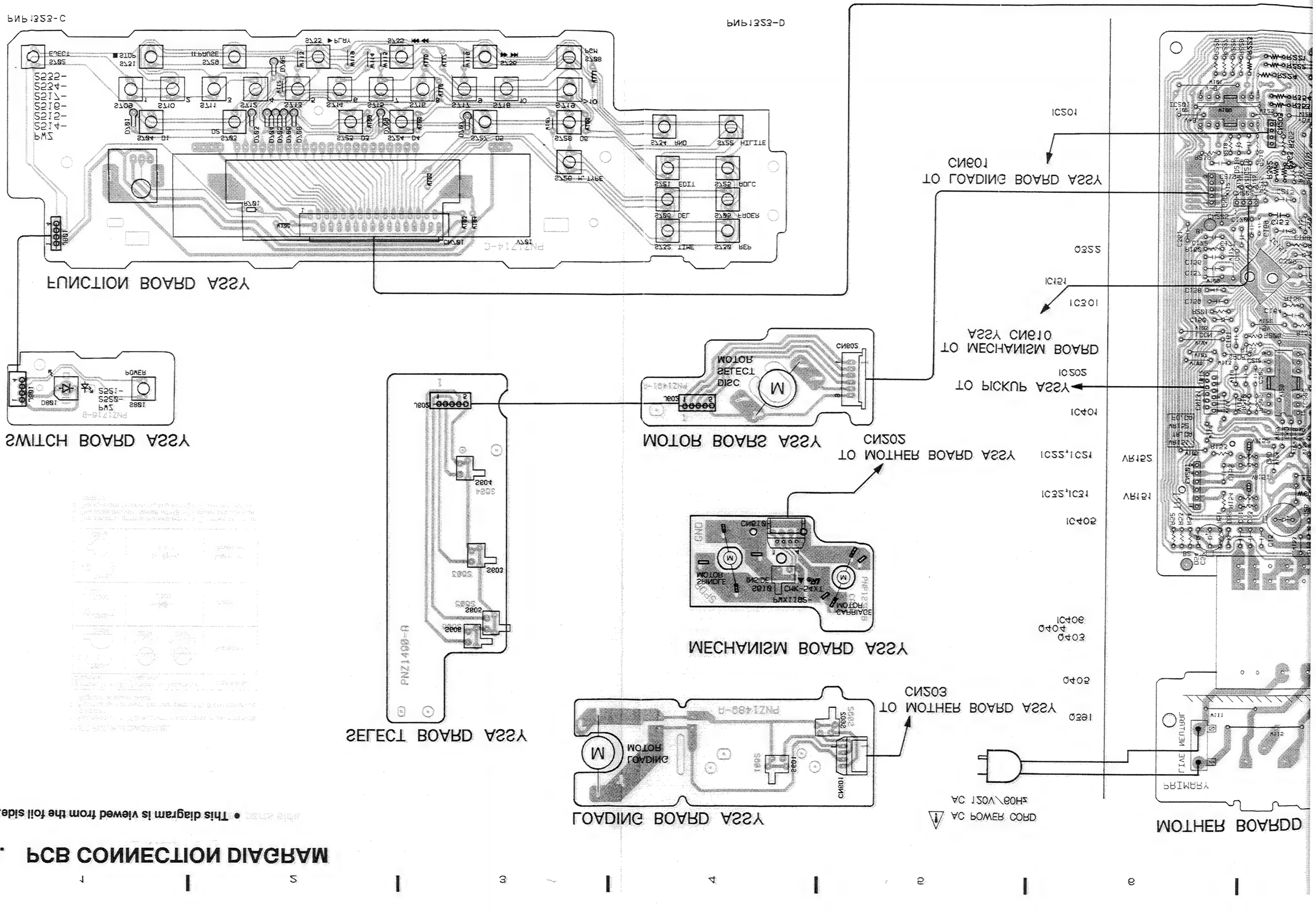
6. PCB CONNECTION DIAGRAM

• This diagram is viewed from the foil side.



7. PCB PARTS LIST

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56 × 10¹ → 561 ····· RD1/8PM [5][6][1] J
47k Ω → 47 × 10³ → 473 ····· RD1/4PS [4][7][3] J
0.5 Ω → 0R5 ····· RN2H [0][R][5] K
1 Ω → 010 ····· RS1P [0][1][0] K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562 × 10¹ → 5621 ····· RN1/4PC [5][6][2][1] F

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
⚠		MOTHER BOARD ASSY	PWM1866
NSP		SUB BOARD ASSY	PWX1360
NSP		├ SWITCH BOARD ASSY	PWZ2520
NSP		├ HEADPHONE BOARD ASSY	PWZ2524
		└ FUNCTION BOARD ASSY	PWZ2814
NSP		MECHANISM BOARD ASSY	PWX1279
NSP		├ LOADING BOARD ASSY	PWZ2038
NSP		├ MOTOR BOARD ASSY	PWZ2040
NSP		└ SELECT BOARD ASSY	PWZ2533
NSP		MECHANISM BOARD ASSY	PWX1192
MOTHER BOARD ASSY			
SEMICONDUCTORS			
	IC151	SERVO IC	CXA1372Q
⚠	IC201, IC202	POWER OP-AMP IC	LA6520
⚠	IC21	REGULATOR, IC	PQ05RR12
⚠	IC22	REGULATOR IC	NJM79L05A
	IC301	EFM DEMODULATION IC	CXD2500BQ
	IC351	MICROCOMPUTER IC	PD4458A
	IC401	D/A CONVERTER IC	PD2026B(L)
	IC405	OP-AMP IC	NJM4565D-D
	IC406	OP-AMP IC	BA15218
	Q322	TRANSISTOR	DTC124ES
	Q391	TRANSISTOR	2SC1740S
	Q403, Q404	TRANSISTOR	2SD2144S
	Q405	TRANSISTOR	DTC124ES
⚠	D11-D14	DIODE	11ES2
	D351, D391	DIODE	1SS254
	D392-D397	DIODE	1SS254
⚠	D52	DIODE	11ES2
	D54	ZENNER DIODE	MTZJ18B
COILS AND FILTERS			
	L351	AXIAL INDUCTOR	LAU100K
	L391, L395	AXIAL INDUCTOR	LAU010K
	L396, L470	AXIAL INDUCTOR	LAU010K
	L471	AXIAL INDUCTOR	LAU010K
CAPACITORS			
	C11, C13	CERAMIC CAPACITOR	CKCYF103Z50
	C15	CERAMIC CAPACITOR	CKCYF103Z50
	C155	CERAMIC CAPACITOR	CKCYB102K50
	C156	CERAMIC CAPACITOR	CGCYX333K25
	C157	CERAMIC CAPACITOR	CGCYX103K25
	C158, C159	CERAMIC CAPACITOR	CGCYX104K25
	C16	CERAMIC CAPACITOR	CKCYF103Z50
	C160	ELECT. CAPACITOR	CEAS4R7M50
	C161	CERAMIC CAPACITOR	CGCYX104K25
	C162	ELECT. CAPACITOR	CEAS4R7M50
	C163	CERAMIC CAPACITOR	CGCYX104K25
	C164	CERAMIC CAPACITOR	CGCYX103K25
	C167	CERAMIC CAPACITOR	CKCYF103Z50
	C168	CERAMIC CAPACITOR	CGCYX333K25
	C169	CERAMIC CAPACITOR	CGCYX103K25
	C17	CERAMIC CAPACITOR	CKCYF103Z50
	C170	CERAMIC CAPACITOR	CKCYB332K50
	C171, C172	CERAMIC CAPACITOR	CKCYB472K50
	C205, C210	CERAMIC CAPACITOR	CKCYF103Z50
	C215	CERAMIC CAPACITOR	CKCYF103Z50
	C218	CERAMIC CAPACITOR	CGCYX103K25
	C219	CERAMIC CAPACITOR	CKCYF103Z50
	C25	ELECT. CAPACITOR	CEAS330M16
	C26	ELECT. CAPACITOR	CEAS100M16
	C27, C28	ELECT. CAPACITOR	CEAS330M16
	C301	CERAMIC CAPACITOR	CGCYX104K25
	C306	CERAMIC CAPACITOR	CKCYB102K50
	C307	CERAMIC CAPACITOR	CGCYX473K25
	C308	CERAMIC CAPACITOR	CGCYX103K25
	C309	ELECT. CAPACITOR	CEASR47M50
	C322	CERAMIC CAPACITOR	CKCYF103Z50
	C351	ELECT. CAPACITOR	CEAS47M6R3
	C353, C361	CERAMIC CAPACITOR	CKCYF103Z50

Mark	No.	Description	Part No.
	C393	CERAMIC CAPACITOR	CCCSL101J50
	C403	CERAMIC CAPACITOR	CCCCH120J50
	C404	CERAMIC CAPACITOR	CCCCH220J50
	C413-C416	AUDIO FILM CAPACITOR	CFTYA104J50
	C429, C430	CERAMIC CAPACITOR	CCCCH390J50
	C433, C434	CAPACITOR (ALUMINUM)	PCH1107
	C435-C438	CERAMIC CAPACITOR	CCCCH390J50
	C441, C442	FILM CAPACITOR	PCL1030
	C461	CERAMIC CAPACITOR	CKCYF103Z50
	C52	ELECT. CAPACITOR	CEAS101M35
RESISTORS			
	VR151, VR152	VR	PCP1030
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	CN131	CONNECTOR	12FMZ-ABT
	CN201	CONNECTOR 6P	RKP-533
	CN202	CONNECTER	VKN1051
	CN203	CONNECTOR 4P	4-173981-4
	CN204	6P JUMPER CONNECTOR	52147-0610
	CN351	CONNECTOR	9604S-32C
	CN401	3P JUMPER CONNECTOR	52147-0310
	JA391, JA392	JACK	RKN1004
	JA393	JACK	PKN1005
	JA401	JACK	PKB1009
	X351	CERAMIC RESONATOR	VSS1028
	X401	XTAL RES (OSC)	PSS1008
⚠	TERMINAL		RKC-061

SWITCH BOARD ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	D801	LED	PCX1019
SWITCHES AND RELAYS			
	S801	SWITCH	PSG1006

HEADPHONE BOARD ASSY

Mark	No.	Description	Part No.
COILS AND FILTERS			
	L501, L504	AXIAL INDUCTOR	LAU010K
	L505	AXIAL INDUCTOR	LAU010K
CAPACITORS			
	C501, C502	CERAMIC CAPACITOR	CKCYF103Z50
	C503	CERAMIC CAPACITOR	CKCYF473Z50
RESISTORS			
	VR501	VARIABLE RESISTOR	PCS1003
	OTHER RESISTORS		RD1/6PM□□□J
OTHERS			
	JA501	JACK	RKN1002

FUNCTION BOARD ASSY

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	D701-D709	DIODE	1SS254
SWITCHES			
	S702-S706	SWITCH	PSG1006
	S708-S719	SWITCH	PSG1006
	S721-S736	SWITCH	PSG1006
RESISTORS			
	ALL RESISTORS		RD1/6PM□□□J
OTHERS			
	CN701	CONNECTOR	9604S-32F
	V701	FL INDICATOR TUBE	PEL1084
	REMOTE SENSOR		SBX1610-51

MECHANISM BOARD ASSY

Mark	No.	Description	Part No.
SWITCHES AND RELAYS			
	S610	PUSH SWITCH	DSG1016
OTHERS			
	CN610	CONNECTOR 4P	VKN1061

LOADING BOARD ASSY

Mark	No.	Description	Part No.
SWITCHES AND RELAYS			
	S601, S602	PUSH SWITCH	DSG1016
OTHERS			
	CN601	CONNECTOR 4P	4-173979-4

MOTOR BOARD ASSY

Mark	No.	Description	Part No.
OTHERS			
	CN602	6PJUMPER CONNECTOR	52151-0610

SELECT BOARD ASSY

Mark	No.	Description	Part No.
SWITCHES AND RELAYS			
	S603	DETECTOR SWITCH	PSG1010
	S604-S606	PUSH SWITCH	DSG1016

8. ADJUSTMENTS

8.1. Adjustment Methods

If a disc player is adjusted incorrectly or inadequately, it may malfunction or not work at all even though there is nothing at all wrong with the pickup or the circuitry. Adjust correctly following the adjustment procedure.

● Adjustment Items/Verification Items and Order

If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in steps 1 − 4, the pickup block may be defective.

Step	Item	Test Point	Adjustment Location
1	Focus offset verification	TP1, Pin 6 (FCS. ERR)	None
2	Tracking error balance verification	TP1, Pin 2 (TRK. ERR)	None
3	Pickup radial/tangential direction tilt adjustment	TP1, Pin 1 (RF)	Radial tilt adjustment screw, Tangential tilt adjustment screw
4	RF level verification	TP1, Pin 1 (RF)	None
5	Focus servo loop gain adjustment	TP1, Pin 5 (FCS. IN) TP1, Pin 6 (FCS. ERR)	VR152 (FCS. GAN)
6	Tracking servo loop gain adjustment	TP1, Pin 3 (TRK. IN) TP1, Pin 2 (TRK. ERR)	VR151 (TRK. GAN)

● **Abbreviation table**

FCS. ERR :Focus Error
TRK. ERR :Tracking Error
FCS GAN :Focus Gain
TRK GAN :Tracking Gain
FCS. IN :Focus In
TRK. IN :Tracking In

● Measuring Instruments and Tools

1. Dual trace oscilloscope (10:1 probe)
2. Low-frequency oscillator
3. Test disc (YEDS-7)
4. Low pass filter (39kΩ +0.001 μF)
5. Resistor (100 kΩ)
6. Standard tools

● Test Point and Adjustment Variable Resistor Positions

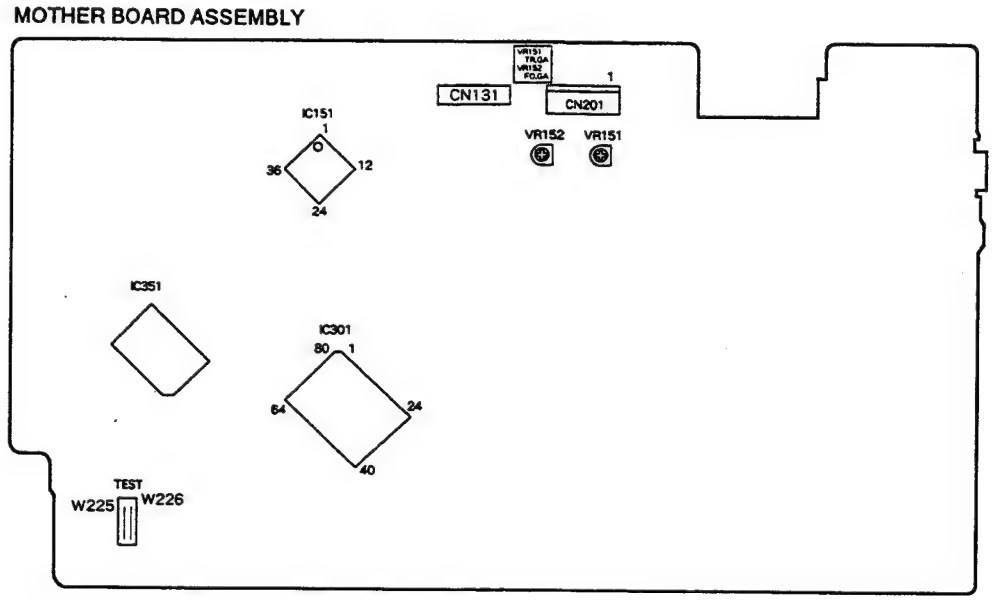


Figure 1. Adjustment Locations

● Notes

1. Use a 10:1 probe for the oscilloscope.
2. All the knob positions (settings) for the oscilloscope in the adjustment procedures are for when a 10:1 probe is used.

● Test Mode

These models have a test mode so that the adjustments and checks required for service can be carried out easily. When these models are in test mode, the keys on the front panel work differently from normal. Adjustments and checks can be carried out by operating these keys with the correct procedure. For these models, all adjustments are carried out in test mode.

[Setting these models to test mode]

How to set this model into test mode.
1. Unplug the power cord from the AC socket.
2. Short the test mode jumper wires. (See Figure 1.)
3. Plug the power cord back into the AC socket.

When the test mode is set correctly, the display is different from what it usually is when the power is turned on. If the display is still the same as usual, test mode has not been set correctly, so repeat Steps 1 – 3.

[Release from test mode]

Here is the procedure for releasing the test mode:

1. Press the STOP key and stop all operations.
2. Unplug the power cord from the AC socket.

[Operations of the keys in test mode]

Code	Key Name	Function in Test Mode	Explanation
	PGM (PROGRAM)	Focus servo close	The laser diode is lit up and the focus actuator is lifted up, then lowered slowly and the focus servo is closed at the point where the objective lens is focused on the disc. With the player in this state, if you lightly rotate the stopped disc by hand, you can hear the sound the focus servo. If you can hear this sound, the focus servo is operating correctly. If you press this key with no disc mounted, the laser diode lights up, the focus actuator is pulled up, then the actuator is lowered and raised three times and returned to its original position.
▷	PLAY	Spindle servo ON	Starts the spindle motor in the clockwise direction and when the disc rotation reaches the prescribed speed (about 500 rpm at the inner periphery), sets the spindle servo in a closed loop. Be careful. Pressing this key when there is no disc mounted makes the spindle motor run at the maximum speed. If the focus servo does not go correctly into a closed loop or the laser light shines on the mirror section at the outermost periphery of the disc, the same symptom is occurred.
▯▯	PAUSE	Tracking servo close/open	Pressing this key when the focus servo and spindle servo are operating correctly in closed loops puts the tracking servo into a closed loop, displays the track number being played back and the elapsed time on the front panel, and outputs the playback signal. If the elapsed time is not displayed or not counted correctly or the audio is not played back correctly, it may be that the laser is shining on the section with no sound recorded at the outer edge of the disc, that something is out of adjustment, or that there is some other problem. This key is a toggle key and open/close the tracking servo alternately. This key has no effect if no disc is mounted.

Code	Key Name	Function in Test Mode	Explanation
⏮	TRACK / MANUAL SEARCH REV	Carriage reverse (inwards)	Moves the pickup position toward the inner diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
⏭	TRACK / MANUAL SEARCH FWD	Carriage forward (outwards)	Moves the pickup position toward the outer diameter of the disc. When this key is pressed with the tracking servo in a closed loop, the tracking servo automatically goes into an open loop. Since the motor does not automatically stop at the mechanical end point in test mode, be careful with this operation.
⏹	STOP	Stop	Initializes and the disc rotation stops. The pickup and disc remain where they are when this key is pressed.
⏏	EJECT	CD magazine eject	Stores Disc 1 in the CD magazine, then ejects the CD magazine. However, even though the CD magazine is ejected, the pickup does not return to the park position. Even if the CD magazine is mounted again, the pickup remains where it is.

Note : When inserting the magazine, disc 1 of the magazine is loaded automatically.

[How to play back a disc in test mode]

In test mode, since the servos operate independently, playing back a disc requires that you operate the keys in the correct order to close the servos.
Here is the key operation sequence for playing back a disc in test mode.

PGM(PROGRAM)	Lights up the laser diode and closes the focus servo.
⇩	
PLAY ▷	Starts the spindle motor and closes the spindle servo.
⇩	
PAUSE ▯▯	Closes the tracking servo.

Wait at least 2-3 seconds between each of these operations.

1. Focus Offset Verification

● Objective ● Symptom when out of adjustment	Verify the DC offset for the focus error amp. The model does not focus in and the RF signal is dirty.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 6 (FCS. ERR) [Settings] 5 mV/division 10 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, stopped (just the Power switch on) None None needed
[Procedure] Verify the DC voltage at TP1, Pin 6 (FCS. ERR) is 0 ± 50 mV.			

Note : If the specified values cannot be obtained or no adjustment is possible by performing the verifications or adjustments described in adjustment items 1 – 4, the pickup block may be defective.

2. Tracking Error Balance Verification

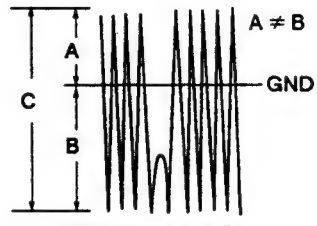
● Objective ● Symptom when out of adjustment	To verify that there is no variation in the sensitivity of the tracking photo diode. Play does not start or track search is impossible.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 2 (TRK. ERR). This connection may be via a low pass filter. [Settings] 50 mV/division 5 ms/division DC mode	● Player state ● Adjustment location ● Disc	Test mode, focus and spindle servos closed and tracking servoopen None YEDS-7

[Procedure]

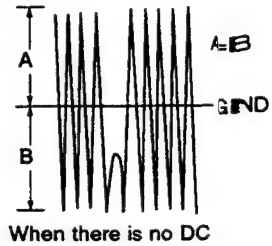
1. Move the pickup to midway across the disc (R=35 mm) with the TRACK / MANUAL SEARCH FWD ▷▷ · ▷▷| or REV |◁◁ · ◁◁ key.
2. Press the PGM (PROGRAM) key, then the PLAY ▷ key in that order to close the focus servo then the spindle servo.
3. Line up the bright line (ground) at the center of the oscilloscope screen and put the oscilloscope into DC mode.
4. Supposing that the positive amplitude of the tracking error signal at TP1, pin 2 (TRK ERR) is (A) and the negative amplitude is (B), the following expression is satisfied.

When $A \geqq B$, $\frac{A-B}{C} \times \frac{1}{2} \leqq 0.05$

When $A < B$, $\frac{B-A}{C} \times \frac{1}{2} \leqq 0.05$



When there is a DC component



When there is no DC component

3. Pickup Radial/Tangential Tilt Adjustment

● Objective	To adjust the angle of the pickup relative to the disc so that the laser beams are shone straight down into the disc for the best read out of the RF signals.		
● Symptom when out of adjustment	Sound broken;some discs can be played but not others.		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 20 mV/division 200 ns/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play Pickup radial tilt adjustment screw and tangential tilt adjustment screw YEDS-7

[Procedure]

1. Press the TRACK/MANUAL SEARCH FWD ▷▷ · ▷▷| or REV |◁◁ · ◁◁ key to move the pickup to halfway across the disc (R=35mm).
   Press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the respective servos and put the player into play mode.
2. First, adjust the radial tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly.
3. Next, adjust the tangential tilt adjustment screw with a Phillips screwdriver so that the eye pattern (the diamond shape at the center of the RF signal) can be seen the most clearly (Figure 3).
4. Adjust the radial tilt adjustment screw and the tangential tilt adjustment screw again so that the eye pattern can be seen the most clearly. As necessary, adjust the two screws alternately so that the eye pattern can be seen the most clearly.
5. When the adjustment is completed, lock the radial and tangential adjustment screw.
   Note:Radial and tangential mean the directions relative to the disc shown in Figure 2.

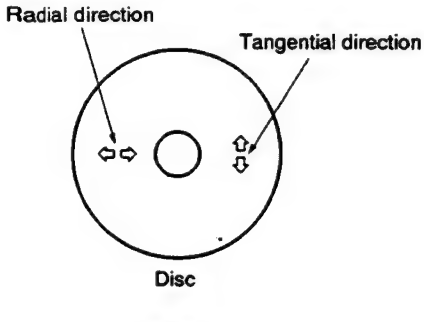
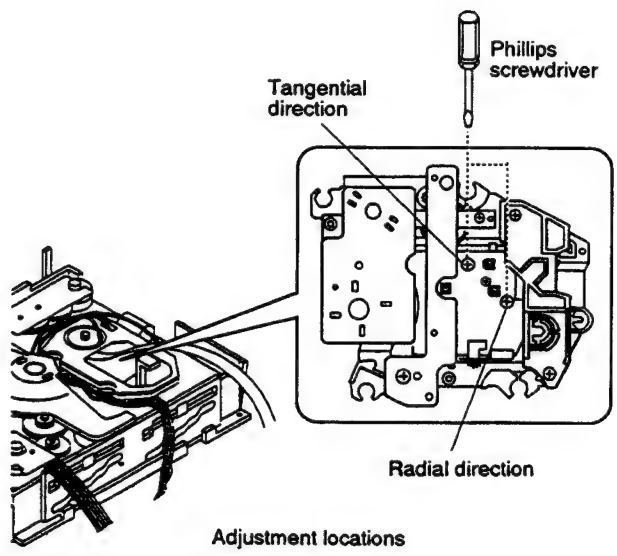


Figure 2



Adjustment locations

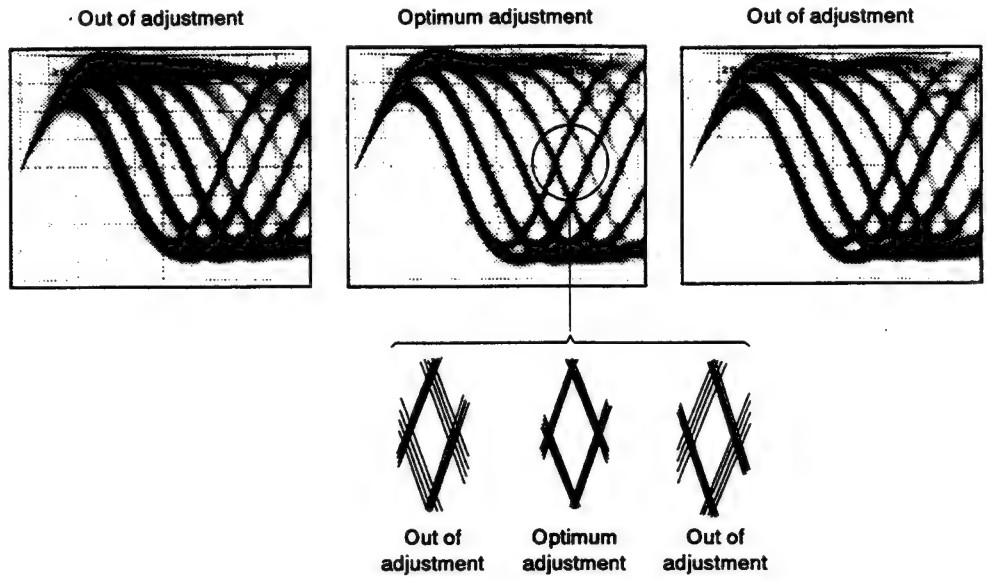


Figure 3. Eye pattern

4. RF Level Verification

● Objective ● Symptom when out of adjustment	To verify the playback RF signal amplitude No play or no search		
● Measurement instrument connections	Connect the oscilloscope to TP1, Pin 1 (RF). [Settings] 50 mV/division 10 ms/division AC mode	● Player state ● Adjustment location ● Disc	Test mode, play None YEDS-7

[Procedure]

1. Move the pickup to midway across the disc (R=35 mm) with the TRACK/MANUAL SEARCH FWD ▷▷ · ▷▷| or REV |◁◁ · ◁◁ key, then press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the respective servos and put the player into play mode.
2. Verify the RF signal amplitude is 1.2 Vp-p ± 0.2 V.

5. Focus Servo Loop Gain Adjustment

● Objective	To optimize the focus servo loop gain.		
● Symptom when out of adjustment	Playback does not start or focus actuator noisy.		
● Measurement instrument connections	See figure 4. [Settings] CH1 CH2 20 mV/division 5 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR152 (FCS. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 1 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▷▷ · ▷▷| or REV |◁◁ · ◁◁ key to move the pickup to halfway across the disc (R=35 mm), then press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR152 (FCS. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

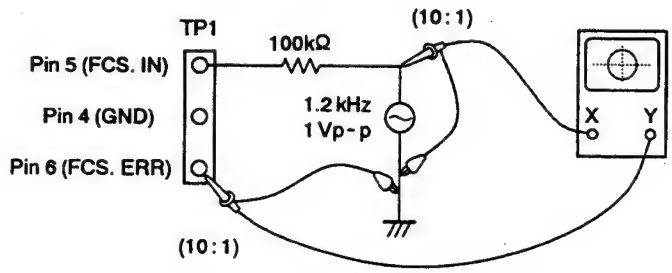
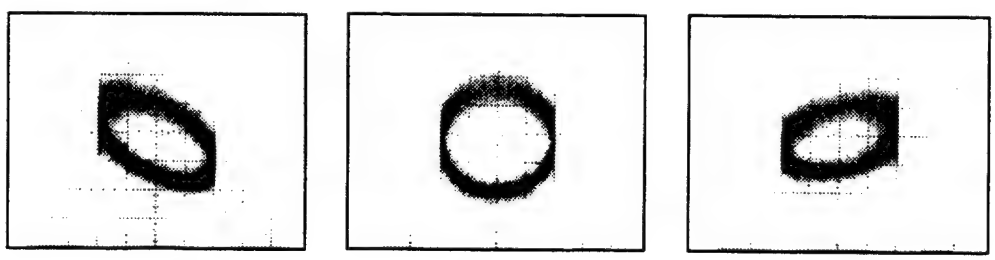


Figure 4

Focus Gain Adjustment



Higher gain | Optimum gain | Lower gain

6. Tracking Servo Loop Gain Adjustment

● Objective	To optimize the tracking servo loop gain.		
● Symptom when out of adjustment	Playback does not start, during searches the actuator is noisy, or tracks are skipped.		
● Measurement instrument connections	See Figure 5. [Settings] CH1 CH2 50 mV/division 20 mV/division X-Y mode	● Player state ● Adjustment location ● Disc	Test mode, play VR151 (TRK. GAN) YEDS-7

[Procedure]

1. Set the AF generator output to 1.2 kHz and 2 Vp-p.
2. Press the TRACK/MANUAL SEARCH FWD ▷▷ • ▷▷| or REV |◁◁ • ◁◁ key to move the pickup to halfway across the disc (R=35 mm), then press the PGM (PROGRAM) key, the PLAY ▷ key, then the PAUSE ▯▯ key in that order to close the corresponding servos and put the player into play mode.
3. Adjust VR151 (TRK. GAN) so that the Lissajous waveform is symmetrical about the X axis and the Y axis.

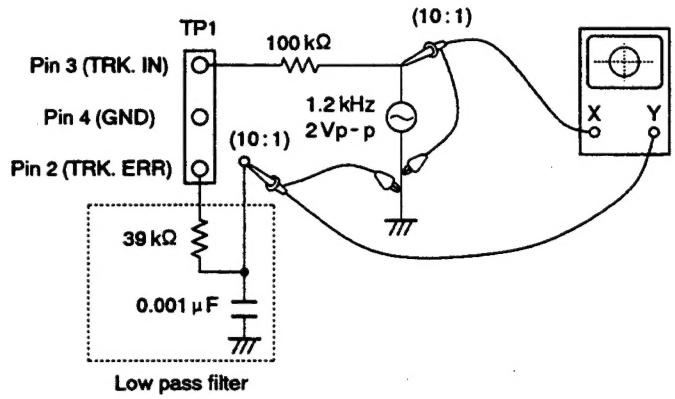
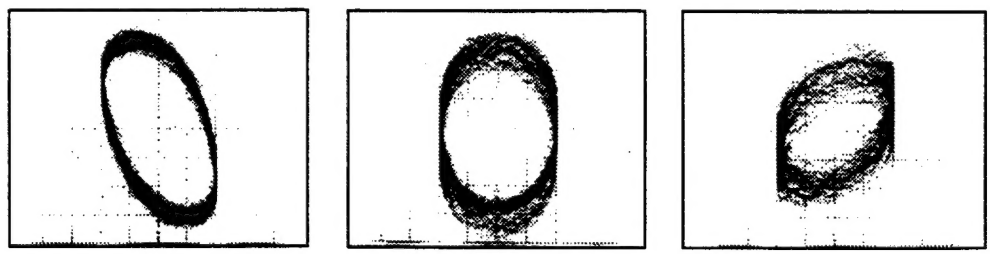


Figure 5

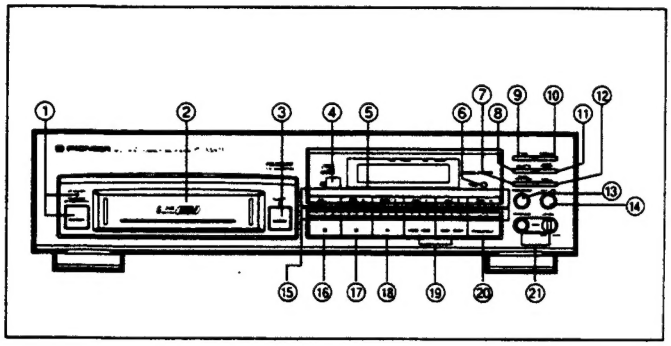
Tracking Gain Adjustment



Higher gain | Optimum gain | Lower gain

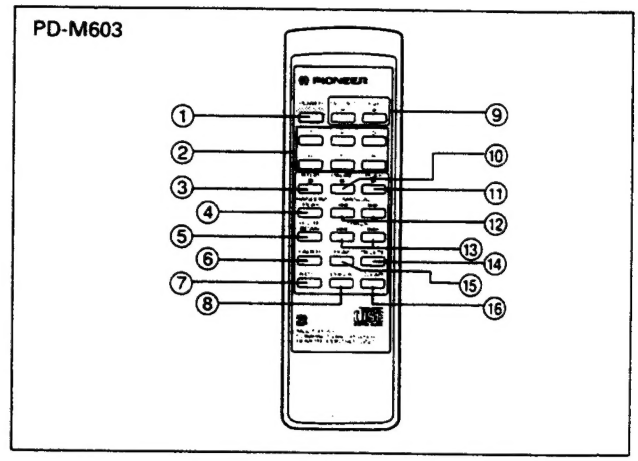
9. PANEL FACILITIES

FRONT PANEL



① POWER STANDBY/ON switch and STANDBY indicator
② Magazine insertion slot
③ EJECT button (⏏)
④ Remote sensor
Receives the signal from the remote control unit.
⑤ Disc number buttons (DISC 1~DISC 6)
⑥ MUSIC TYPE button
⑦ COMPU/TIME FADE button
⑧ DELETE button
⑨ TIME button
⑩ REPEAT button
⑪ AUTO FADER button
⑫ ADLC (Automatic Digital Level Controller) button
⑬ RANDOM play button
⑭ HI-LITE scan button
⑮ Digit buttons (1~10, >10)
⑯ Stop button (■)
⑰ Pause button (II)
⑱ Play button (►)
⑲ Track/Manual search buttons (|◄◄ ◄◄/►► ►►|)
⑳ PROGRAM button
㉑ Headphones jack (PHONES) and headphones volume control (PHONES LEVEL)

REMOTE CONTROL UNIT



Remote control buttons with the same names or marks as buttons on the front panel of the player control the same operations as the corresponding front panel buttons.

① POWER button
② DISC NUMBER buttons (1~6)
③ STOP button (■)
④ RANDOM PLAY button
⑤ HI-LITE SCAN button
⑥ FADER button (PD-M603 only)
⑦ ADLC (Automatic Digital Level Controller) button
⑧ CHECK button
⑨ OUTPUT LEVEL buttons (+/–)
⑩ PAUSE button (II)
⑪ PLAY button (►)
⑫ MANUAL search buttons (◄◄/►►)
⑬ TRACK search buttons (|◄◄/►►|)
⑭ DELETE button
⑮ PGM (program) button
⑯ CLEAR button

10. SPECIFICATIONS

General

Type ..... Compact disc digital audio system
Power requirements ..... AC 120 V, 60 Hz
Power consumption ..... 12 W
Operating temperature ..... +5°C~+35°C
(+41°F~+95°F)
Weight ..... 3.8 kg (8 lb, 6 oz)
External dimensions ..... 420 (W) x 299 (D) x 105 (H) mm

Audio section

Frequency response ..... 2 Hz-20 kHz
S/N ratio
PD-M703 ..... 102 dB or more (EIAJ)
PD-M603 ..... 98 dB or more (EIAJ)
Dynamic range ..... 96 dB or more (EIAJ)
Harmonic distortion ..... 0.003% or less (EIAJ)
Output voltage ..... 2.0 V
Wow and flutter ..... Limit of measurement
(±0.001% W. PEAK) or less (EIAJ)
Channels ..... 2-channel (stereo)

Output terminal

Audio line output
Headphone jack with volume control
Control input/output jacks
CD-DECK SYNCHRO jack

Accessories

- Remote control unit 1
- AAA/R03 dry cell batteries 2
- 6-compact-disc magazine 1
- Control cable 1
- Output cable 1
- Operating instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

The Magazine Type Multi-Play CD Players with mark and the Magazines with the same mark are compatible for 12 cm discs.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